THE ENGINEERING AND MINING JOURNAL AND COAL

Entered at the Post-Office of New York, N. Y., as Second-Class Mail Matter.

VOL. LVI. AUGUST 12. No. 7.

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THE SCIENTIFIC PUBLISHING CO., Publishers.

SUBSCRIPTION PRICE: For the United States, Mexico and Canada, $5 per annum; $2.50 for six months; all other countries in the Postal Union, $7.

ADVERTISING RATES furnished on application.

REMITTANCES should always be made by Bank Drafts, Post-Office Orders or Express Money Orders on New York, payable to THE SCIENTIFIC PUBLISHING CO. All payments must be made in advance.

NOTICE OF DISCONTINUANCE.—The ENGINEERING AND MINING JOURNAL is sent to subscribers until an explicit order for its discontinuance is received by us, and all payment of arrearages is made, as required by law. *Papers returned are not notices of discontinuance.*

THE SCIENTIFIC PUBLISHING COMPANY.

OFFICERS:
R. P. ROTHWELL, Pres. & Gen'l Mang.
SOPHIA BRAEUNLICH, SEC'Y & TREAS.

P. O. BOX 1833.
27 Park Place, New York.

Cable Address: "Rothwell, New York." Use A B C Code, Fourth Edition.

LONDON OFFICE:
20 Bucklersbury (Room 366), London, E. C., England.
Edward Walker, Manager.

CHICAGO OFFICE: "The Rookery," Room 531.

HEADQUARTERS AT THE WORLD'S COLUMBIAN EXPOSITION:
Mining Building, Montana Pavilion, Bullion Boulevard.
Machinery Hall, Section K, Aisle 37 (Central Aisle).

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THE most important matter to the mineral industry is the prompt re-establishment of confidence in financial matters, and the permanent solution of the silver problem.

A DEMAND for labor from the gold mining districts caused by the opening of new mines and the extensions of old workings is indicated by the general tenor of our mining news. Many of the idle silver mines may find work in the placers and gold ledges of Wyoming, California and other States, if not in mines nearer home.

A SUIT reported in our mining news columns shows the changing conditions and the greater economy prevailing in the anthracite coal business. The suit was brought under an old lease which originally permitted the lessee to disregard all coal below chestnut size as waste, and to pay royalty only on that which could be passed as chestnut or of larger size; but the lessor now seeks to recover royalty on pea and buckwheat marketed, that is, practically to extend the range of royalty paid in accordance with the changed conditions of the market, which, as we have heretofore shown, now include a much wider range of product than it did only a few years ago.

THE number and value of papers presented in the Mining and Metallurgical Sections of the Engineering Congress in Chicago have probably exceeded those presented at any previous meetings of the Institute of Mining Engineers. This was due partly to the presence of some eminent foreign engineers who contributed papers, and partly to an appreciation by the Institute of the importance of the occasion. Owing to the small attendance, to which some reference was made in our last issue, the discussions were not perhaps as extensive as the value of the papers called for, but were still interesting. The Institute, it may be said, took its full share in making the Congress a success.

THE commercial ratio of silver to gold in 1872 was 15·63 to 1; in 1882 it was 18·19 to 1; in 1892 it was 23·73 to 1, and at the present price, 70 cents per oz. fine, the ratio is 29·53 to 1. We have had it recently below 30 to 1. The adoption of free coinage by the United States *alone*, at any ratio whatever, would be pure madness; it would instantly drive all our gold from the country, put us on the single silver standard like Mexico or India, and bind us with chains under the feet of all Europe. Fortunately no free coinage scheme can pass Congress.

There is nothing but an international agreement for universal bimetalism that can help silver, and such an agreement we believe to be possible of attainment.

LET our government inform foreign governments, through the usual official channels, that the United States is in favor of universal bimetallism, and would be pleased to act with other nations in the appointment of an International Monetary Clearing House or Commission *empowered and instructed* to select a universal monetary standard and to adopt suitable measures for securing the use of gold and silver on such a flexible ratio as will effect permanent stability in the world's money. At the same time the Government should announce that unless such a commission be appointed with power to settle the question the United States will necessarily be obliged to strengthen its gold reserve and that, before doing this and to avoid the incalculable derangement to the business of the world, which the appreciation of the value of gold resulting from this large demand would cause, this proposition to submit the settlement of the whole question to impartial international arbitration is submitted for consideration.

THE directors of the Lehigh Valley Railroad have at last taken the action which the stockholders had a right to expect from them some time ago. They have voted to cancel the lease of the road to the Philadelphia & Reading Company, the immediate cause being the failure of the Reading to pay dividends due under the lease, and also the failure of the Reading Coal and Iron Company to pay for coal purchased from the Lehigh Valley Coal Company and marketed by the purchaser. There is no good reason, and in fact there never was any, why the Lehigh Valley should not have remained under its own independent management. The Reading lease was apparently a good "deal" for the stockholders at the time it was made, but this was in appearance only, for the results which have followed might have been anticipated by anyone familiar with the true condition of the Reading company. At the present time, it is stated that the Lehigh Valley has a floating debt of about $4,000,000, but its assets, including coal on hand, are sufficient to enable this to be carried and settled without much difficulty, even in the present times of tight money.

THE message of President Cleveland is, as was generally anticipated, a plain, straightforward, business-like document, free from all pyrotechnics and aimed solely at the repeal of the silver-purchase clause of the Sherman act, which the President and nearly everyone else deems to be the foundation of a large part of our present financial panic. His earnest appeal to Congress to remove this cause of distrust and to put beyond

possibility of doubt our determination to maintain all our money on an equality with that of the other great nations, and as good as the best, was all that could be desired, and perhaps all that the President could do.

We join in his earnest appeal and urge, in the interests of the imperiled industries of the country, on Congress, the absolute necessity of a prompt repeal of the silver-purchase clause. The present condition of the country is such as should make every patriotic citizen sink his personal preferences and forget his party and join in promptly removing this great source of distrust. Every day brings us nearer to a condition of affairs that no man can contemplate without the gravest apprehension. Let those who love their country unite now in urging prompt and harmonious action in Congress. Leave the political questions until this is settled and every assurance given that will induce the influx of capital and the restoration of confidence in the stability and the value of our money.

The August report of the blast furnaces shows, as was to be expected, a continued decrease in production, much larger than was the case with the July statement. The falling off has affected all classes of furnaces in a considerable degree, the coke furnaces, perhaps, in the largest proportion. Since April 1st, when the iron production was highest, some 85 furnaces have gone out of blast, and the weekly capacity has been diminished by about 70,000 tons. On August 1st there were about 170 furnaces in blast, with a weekly capacity of 108,000 tons, which is considerably below the average for several years past. In the meantime reduction continues, and by the present time the production has in all probability fallen to 100,000 tons per week, or not much more than 60 per cent. of the average of last year. The stocks on hand reported August 1st show an increase of about 5 per cent. only, or less than might have been expected from the general condition of the iron trade, showing that in recent months the furnaces have responded quite promptly to the falling off in demand, and have not been piling up stocks to any extent. The present indications are that while the pig iron producers are suffering, as they always do under similar circumstances, from the general depression in trade, the iron industry on the whole is in a healthy condition, and as well able to meet panic conditions as any other branch of manufacturing.

Under ordinary circumstances the strike in the coal mines of Missouri and Kansas, which has been in progress for many weeks past, would have affected the market for spelter, since the works of Pittsburg, Kan., and Joplin, Mo, which produce nearly one-half of the zinc made annually in the United States, are directly dependent upon them for fuel. The production of western spelter has probably been curtailed one-third, but this has not checked the decline in price, which is now down to 3·90 cents per pound in New York—a lower figure than the average for any year since 1873—while the price of zinc blende ore (containing about 55 per cent. zinc) in the Joplin District has sunk to $18 per ton. At these figures there is no profit for either miners or smelters, so that they have been able to watch developments in the coal miners' strike without anxiety. The strike is now about over, we believe, but no movement toward increasing production has yet been begun by the zinc smelters, so far as we can learn, and there is little probability of such action until the demand for spelter improves. At present this is very small on account of the closing down of galvanizers and other consumers, who are affected by the financial stress like every other branch of industry. The situation in the zinc market is instructive on two points, showing how inopportune for strikes are times like the present, and how other kinds of mining, as well that of silver, are affected by foolish silver legislation.

We would again suggest that "The Silver Question," with its vast and incalculable possibilities for good or ill, for the prosperity or bankruptcy of the greater part of the human race, be submitted to the arbitrament, decision and control of an International Monetary Clearing House, or commission, composed of expert representatives of the nations, empowered and instructed by their respective governments—

1st. To select a universal monetary standard:

2d. To adopt measures for securing the use of gold and silver on such a flexible ratio as will effect permanent stability in the value of the world's money:

3d. To adopt measures for facilitating international monetary transactions and for their supervision and control.

The experience of the past justifies the belief that such a body of experts, representing the interests of the civilized world, would arrive at a wiser and juster solution of the problem than could be expected from the more or less biased legislators of any one country.

This Monetary Clearing House, exercising functions somewhat similar to those of a bank clearing-house, would prevent any sudden changes and fluctuations in the value of the money of the world, which changes are so disastrous in every department of industry and commerce, yet this would not prevent a natural and gradual evolution toward a single standard for unlimited legal tender money, should such ever become desirable.

In establishing on an absolutely stable, permanent basis the money of the whole world and in providing a universal currency, good the world over, and in exercising a salutary supervision and control over all the monetary transactions of nations, it would develop confidence everywhere and would draw out into active use the vast amounts of both gold and silver hoarded in many countries and thus bring about such an impetus to industry and investment and such a period of general prosperity as has never been dreamed of.

Every business man knows that it is not so much the extent as it is the suddenness of changes in values which causes the utter demoralization of business and the destruction of industries. If changes were small in amounts, and occurred only at long intervals, business would be adapted to them without disturbance or disaster, but where the market value of silver declines suddenly 20 to 30 per cent., and no one can foresee what further decline may take place nor what its extent may be, then the business of two-thirds of the world's inhabitants is utterly demoralized, while the greatly increased demand for gold, the standard money of the other one-third of the world, must necessarily bring about a rapid and very large advance in the market price of that metal, for the supply can neither be quickly nor largely augmented. The operation of the law of supply and demand, which brings a decline in the price for an undesired surplus on the market, and advances prices when there is "a famine" or insufficient supply of any article, is absolute and inflexible. An advance in the value of the standard means a decline in the market price of everything measured by it, including wages and every product of labor, so that this inevitable sudden appreciation of gold would bring even greater distress and disaster upon the people using the gold standard than the depreciation of silver had caused to the others.

It would require a long period of depression, or financial panic, infinitely more intense than any ever yet seen, and many bitter strikes, accompanied by poverty and desperation and a general stoppage of the wheels of commerce, before the business of the world could be adapted to the new conditions, and men would willingly accept one-half or one-third of the wages they had been accustomed to. Who can measure the effects of a general reduction of 50 per cent. in the rate of wages, or of the almost total, sudden destruction of the exchangeable value of the money of two-thirds of the inhabitants of the world?

A PLAN FOR INCREASING RAPIDLY THE SUPPLY OF CURRENCY.

Mr. R. V. W. Du Bois, of New York, has suggested a very simple and efficient plan for rapidly increasing the currency, now so scarce as to very seriously incommode our manufacturers and merchants. United States bonds can be used by national banks as the basis of an issue of notes, and many banks are issuing as rapidly as the government can print them. There are in this country, held mostly by the saving banks, about $200,000,000 of United States bonds against which no bank notes have been issued, and of these about one half are held in the State of New York. Mr. Du Bois proposes that the national banks shall buy or borrow these bonds from the saving banks and trust companies, giving security for them, and issue at once the notes they would then be entitled to issue. This would add to the currency any desirable part of $200,000,000, and would not require any new legislation or other delay beyond the time necessary to print the notes.

It seems to us that the plan is well worth the immediate attention of our bankers. By some means of co-operative guarantee the savings banks could be made safe in parting with those securities, which they could buy back, by agreement, if they so desired, after giving a certain notice to that effect. There is no other means so far as we know by which the currency can be rapidly increased without special legislation. This plan, therefore, seems to be extremely welcome at the present moment, assuming that the safety of the savings banks would not be impaired by its execution.

NEW PUBLICATIONS.

Universal Bimetallism and an International Monetary Clearing House. By Richard P. Rothwell, M. E., C. E. New York: The Scientific Publishing Company. Pages 54, with tables. Price 75 cents.

This most interesting publication is the development of the suggestions which the author has, from time to time, put forward in the columns of the "Engineering and Mining Journal." He is neither a "silver crank" nor a "gold bug," but a logical bimetallist, who earnestly desires to discover and offer a modus vivendi for silver. He recognizes that the unfortunate metal is nearly moribund, that the medicine which has been administered by the patient's foolish family, at the instigation of incompetent or knavish physicians, has depressed instead of stimulating, and that—unless a radical change of treatment is speedily adopted—death with disastrous consequences must ensue. If these consequences were limited to a heavy bill for funeral expenses, the death of the sick man might be borne with melancholy pleasure, as the termination of a long and well-spent life, but as serious family quarrels and perhaps total bankruptcy of the survivors may result, it is better on the whole to change the physicians and treatment and try and restore the patient to health.

A large proportion of the people of the United States are earnestly desirous that silver shall retain its place as a money metal. No doubt the figures which they give are generally very vague, frequently quite ridiculous, but are based on a widespread belief that the world's stock of gold is not sufficient to be the sole standard and basis of the world's commercial transactions.

When the plain man tries to learn the cause of our present financial illness, he finds that scarcely any two authorities are agreed as to the nature of the disease or of the remedies to be applied, and his mind is stunned by the loud cries of "gold bug," "silver crank," "money shark" and "silver swindler," so much in vogue among "statesmen" and "experts" of local notoriety, world wide ignorance and doubtful financial standing. Amid all this confusion, however, one thing is plain to everybody—the time has come to act, this country must decide upon its future course. If it chooses wisely, prosperity will be assured; if unwisely, indefinite, but great and far-reaching damage will be inflicted.

Let us look at the matter not as partisans, but as reasonable men. We are in the midst of a time of great stringency, marked by an utter loss of confidence in anything but cold cash. We are told that this trouble is caused by the demonetization of silver by the various European powers, and are also told that the trouble has been aggravated by the attempts of the United States to maintain the value of the metal by means of its silver purchase laws. Well, the folly of those laws is now generally admitted, and their repeal is only a question of a short time. What is to follow? The silver problem will not be dead, nor can it be solved by legislative discussion or enactment.

The sufficiency of the world's stock of gold is the first question to be settled. It sufficient, then every legitimate argument of the bimetallist must fall to the ground, and there will be no use to discuss bimetal plans. If insufficient, we must have universal bimetallism. There is no alternative. Upon the decision of sufficiency or insufficiency, every other financial question can wait, but the decision must come through careful study and temperate discussion, and not be obscured by the clamor of those pecuniarily interested as mine-owners, stock speculators or politicians.

Those who hold that the gold stock is adequate to all the requirements of trade point to the fact that business is carried on through a system of commercial credit exchanges, so that the proportion of money required to settle balances is steadily decreasing. This statement is perfectly true, but those who make use of it apparently lose sight of the equally important fact that the business of the world is increasing in a still greater ratio, so that, while the proportion of required money may be growing less, the absolute amount needed is becoming much larger.

What is money? As generally used, the term is synonymous with currency, but this is an error, as shown when the settlement of international balances is considered. As defined by Mr. Rothwell, money is gold, silver and uncovered paper. But uncovered paper consists of promises to pay and the settlement of a balance by its tender, and acceptance is simply a transferral of credit. When a creditor accepts bank notes in settlement of an account the debtor is relieved from further liability, which is transferred to the issuing institution, and does not cease until the paper is redeemed by the payment of absolute money or the delivery of some material object of equivalent value.

Currency consists of absolute money—tokens and certificates of credit. Bank notes of every kind, whether issued by the United States Treasury, the Bank of England or any other institution, governmental, public or private, are only certificates of credit, depending for their value and availability as currency upon the ability of the respective issuing institutions to redeem them with absolute money when required. The American silver dollar, the English shilling, the French franc, as well as all subsidiary coinage are tokens—not absolute money. The metal in them has not the value indicated by the stamp upon them; they circulate at their value within the limits of the issuing government only, and then solely because it is believed that the government can and will redeem them, if required, in absolute money. So far as their currency value is concerned, they do not differ from paper money, and are less desirable because less convenient for handling in quantity.

What, then, is absolute money? Evidently, under the division we have made, only gold can be so considered. Absolute money must be something which derives its value neither from the stamp upon it nor from the solvency of the issuing institution. These qualifications are of prime importance for tokens and certificates of credit, but are of very minor consequence for absolute money. The substance of which absolute money is made must have full intrinsic value, and be practically indestructible, and its forms must be interchangeable at will without loss of material or variation in composition. Such a substitution can be an elementary metal; and of all the metals, gold best fills these requirements. There are other metals which are rarer and more costly, but not one which unites more of those properties which are known as metallic. The value of a $20 gold piece or of an English sovereign is not fixed by the stamp upon it. If the coin is genuine the stamp certifies to its composition, but the value is fixed by the weight. If the composition is known, the gold coins of a Roman emperor or of an African chief will be as readily accepted in payment of an international balance as if they were the latest products of the American mint. In all cases the coins are taken at their bullion value, save that, so far as the current coin can be used again without reminting there is a certain preference for the latter, which finds expression in a small increase in the allowed value.

It is, therefore, the intrinsic value of the contained metal that makes a coin absolute money. All that any government can do is to divide a certain quantity of the metal into pieces of definite size, weight and composition, and by putting on its stamp certify that it has made this division. Nor does coining always add a value. For many purposes an ingot of gold stamped by a government assay office is preferred to an equivalent amount of gold coin, and the most beautifully executed coin is, after all, but a small ingot.

Again, a certificate of credit may, through mutilation, become perfectly valueless, and if we cut a silver dollar in two and attempt to sell the pieces, we shall find that, at present prices, the half is worth little more than one-fourth of the whole. If, however, we cut up a $20 gold piece, the half will sell for $10, the fourth for $5 and so on—minus, of course, the mintage charge for bullion. Now while, in ordinary transactions, the gold coin of a country passes within its boundaries by count, in affairs of magnitude the coin is weighed, being practically treated as bullion. Outside of the region of currency, such coin is always bullion. It is, therefore, erroneous to say that international balances are settled by the use of money. What is used is bullion, although its value is stated in terms of absolute money, which is itself coined bullion.

At present we are struggling with adverse financial conditions, resulting in a remarkable scarcity of currency, which has been withdrawn from the banks and hoarded. However great the lack of confidence may be, it has not extended to the government, whose ability to redeem all of its issues in gold is still undoubted. Hence the curious phenomena of silver certificates being hoarded, and of coined gold or absolute money being easier to obtain than governmental certificates of credit, which are preferred to the gold as being more convenient for storage. During this dearth even the bulky and inconvenient silver dollars are readily taken, even though every one is aware that they are not absolute money, but only tokens. The experience of the past few weeks appears to demonstrate that the country is amply able to absorb and utilize all of the silver now in its treasury, and if further purchases under the present laws are stopped and the laws repealed, the country will not have suffered any lasting damage.

With the repeal of the silver purchase laws, the United States will range itself, as it should do, with the great nations of western Europe. This country cannot pursue an isolated financial policy, but must act in unison with the other great civilized nations. Granting that silver will then become a mere commodity—used for currency for local convenience only—will the world become more prosperous, will commercial calculations be more reliable, will the profits of legitimate enterprise be more assured? No correct answers can be given to these questions until we have accurately solved the problem of the sufficiency of the world's gold stock for all the present and future needs of trade.

If the stock of gold is sufficient, let us not waste time discussing any kind of bimetallism—the single gold standard is simpler, and, if adequate, why attempt to complicate affairs by trying to use silver? But if there is not enough gold for a stable currency basis then we must supplement it by the use of silver. This bimetallism must be either national or international—national bimetallism is a clear, evident and proved impossibility—international bimetallism alone remains.

The plan of universal bimetallism proposed by Mr. Rothwell is simple, and is clearly and frankly stated. It is presented for discussion, criticism and objection, and while not loaded down with details, enough are given to afford a fair idea of how it should work in practice. The approaching session of Congress will doubtless afford an abundant crop of bimetallic plans and projects; it will be well if their authors will display the same extent of knowledge, thoroughness of study and carefulness of statement which are here in evidence. The subject is dry, and to many minds barren; it will not become more fruitful if irrigated by a torrent of words and a trickle of wisdom.

As to the fear expressed by Mr. Rothwell and many others that demonetization must, by increasing the value of gold, work widespread disaster, it may be said that while wages and the prices of the products of labor may decline, as measured by gold, if the decline extends, pari passu, to all articles of consumption, the position of the great mass of mankind will be no worse than at present. People must eat and drink, must be clothed and sheltered, manufactures and commerce must go on . It may take more time and labor to earn a dollar, but when the dollar has been earned and received its increased purchasing power will give to the worker as great a material reward as at present. To say that the price of gold may rise to $30 or $40 an ounce is a contradiction in terms, since so long as an ounce of gold yields on minting $20.67, neither more nor less, the price of an ounce measured by its own dollars is necessarily unchangeable. Some increase of suffering may be caused by the transition to a single standard, but in the end there will be a feeling of security as to the future, which is now lacking.

An international commission, as here proposed, seems to be the only practicable means of introducing universal bimetallism; it is also the best machinery for investigating and determining the problem of the gold sufficiency. A fair-minded, thorough report, made by such an agency would probably settle the question in the minds of all who are not fanatically attached to one side or the other. An international commission might well be appointed for this sole purpose. If its report demonstrated the insufficiency of gold, plans like the present one could be taken up for careful study, and those which might meet with favor be reported upon in minority, as well as majority, reports.

The plan is correct in principle in requiring that the amount of silver purchased for joint account shall be limited only by the offerings, that no limitations of time shall be set at which the purchase arrangement shall cease, and that the price paid shall be the open market price for bullion. It is also true that—so long as the international agreement may last—the purchase of silver by the gold possessing nations from the nations having a surplus of silver, in sufficient quantities to put both sides on a bimetallic basis, is a transaction involving no cost or loss to either side. On the contrary, if bimetallism be a necessity, there will be mutual gain through the benefits derived hrough its introduction. For all that, no matter what international agreements may be entered into, gold at an equal value will always be preferred to silver. Depending, as it must upon the permanency of the agreement, the value of silver must remain essentially artificial, and the fear that the agreement may be destroyed by a general war or by the dissatisfaction of some of the prominent parties to it, will continually introduce some elements of uncertainty into its practical working.

Let us, then, by all means have an international commission to investigate the question of the sufficiency of the gold supply. A demonstration of insufficiency will prove the necessity of an inter-

national agreement, and whenever such is entered into, it will be upon lines similar to those laid down by Mr. Rothwell.

THOMAS M. CHATARD.

NEW PUBLICATIONS.

Stock Tables. By Franklin W. Lantz, A. M. New York; The Homans Publishing Company. Pages, 42.

Traité des Elèvation des Eaux. Par P. Berthot, Ingenieur. Paris, France; Baudry & Cie. Pages, 280; illustrated.

Import Duties of Haiti. Bulletin No. 49; *Revised to June*, 1893. Washington; Bureau of the American Repubics. Pages, 110.

Hand Book of Alabama. By Saffold Berney. Birmingham, Ala.; Roberts & Son. Pages, 561; illustrated, with maps. Price $2.50.

Import Duties of Uruguay. Bulletin No. 47; *Revised to June*, 1893. Washington; Bureau of the American Republics. Pages, 248.

Second Annual Report of the Commissioner of Labor and Inspector of Mines of Tennessee, for the Year 1892. John E. Lloyd, Commissioner. Nashville, Tenn.; State Printers. Pages, 376.

Irrigation in Southern California. By Henry Ellington Brock. Los Angeles, Cal.; Issued by the Publication Committee of the International Irrigation Congress. Pamphlet; pages, 48; illustrated.

Bureau of Education: Circular No. 2. *Benjamin Franklin and the University of Pennsylvania.* By Prof. Francis Newton Thorpe, Ph. D. Washington; Government Printing Office. Pages, 450; illustrated.

Quarterly Report of the Chief of the Bureau of Statistics, Treasury Department, on the Imports, Exports, Immigration and Navigation of the United States for the Three Months Ending March 31*st*, 1893. Washington; Government Printing Office.

CORRESPONDENCE.

We invite correspondence upon matters of interest to the industries of mining and metallurgy. Communications should invariably be accompanied with the name and address of the writer. Initials only will be published when so requested.
All letters should be addressed to the MANAGING EDITOR.
We do not hold ourselves responsible for the opinions expressed by correspondents.

Universal Bimetallism

EDITOR ENGINEERING AND MINING JOURNAL:

Sir: Mr. Balfour's late speech at London is the most pronounced indorsement of your scheme that has come under my notice. I can imagine nothing so absolutely beneficial to the world, or more largely leading to its development and prosperity, than a universal money. My views on finances are necessarily superficial, but it does seem to me that the adoption of your plan would forever take finances out of the most dangerous domain of politics and permit a business calculation in advance amounting largely to a certainty.

CLEVELAND, O., August 9, 1893. EDMUND C. PECHIN.

MR. BALFOUR ON SILVER.

Something of a sensation was caused in London on August 6th, when Arthur J. Balfour, the leader of the Conservative Party in Parliament, a close student of economical questions and an authority in many ways, made a speech at a meeting at the Mansion House, before a company of bankers and merchants (many of whom applauded the speaker) in which he advocated bimetallism on an international basis, leaning strongly towards the views heretofore expressed in the "Engineering and Mining Journal." According to the cable report given in the "World" Mr. Balfour said: The country is now face to face with the currency problem, and it cannot be avoided. Everybody who is concerned with the commerce, trade, or manufactures of this country must make up his mind whether some of the evils under which we are suffering do not flow from the particular form of currency we have to employ.

I do not imagine anybody will deny that there is a feeling of anxiety upon this question abroad; nor that we must look back with regret to that date, 20 years ago, at which the German Government decided to abandon silver and to take gold; nor that the recent action of the Indian Government has shown that at all events in one great community which had a silver standard the present position of affairs is almost or quite intolerable; nor that we all look forward to the possible action of the United States in reference to silver legislation with the gravest anxiety as to what the result may be.

We ask of a legal tender that it be a stable measure of value; that it be a permanent and fair register of amount of indebtedness; that, if debts are contracted in terms of a given standard currency at the date when they mature, neither debtor nor creditor shall find that he has to pay or be paid on principles different from those in operation when the debt was contracted.

We desire that we should find the most suitable measure of value practicable and possible, though I have no hesitation now in asserting that if you cannot attain this absolutely theoretical perfection it is better for the community at large that the standard should be depreciating rather than appreciating. Standard stability is the ideal, but if it cannot be reached the worst alternative of all is that your standard should be a steadily appreciating one.

If that proposition be granted, I ask whether you think it probable, or even possible, that a general single gold standard should satisfy this requirement of stability, or at all events satisfy it as much as a double standard. Assuming a double standard possible, do you not think that the requirement of stability would be better attained by it than by the maintenance of a single gold standard?

What are the causes which interfere with the stability of a standard?

The first cause undoubtedly is the alteration of the conditions under which the metal is produced. New discoveries, exhaustion of mines, new processes, new inventions, all are influences which either augment or diminish the supply of gold in the world, and must ultimately have the effect of altering that standard. If you have a double standard, if you can count for your standard of value not merely upon the gold supply, but upon it plus the silver supply, it is evident that any osciliation or cause of change is diminished, because it is spread over a wider area.

The second great cause of variations in the value of a standard arises from the pressure put upon it by the growth of commerce, population and transactions. If the world is to grow in population and commerce, each increment of population, each augmentation of commerce throws a greater strain upon the standard by which the transactions of the community are measured. If this strain is thrown upon a gold plus silver standard, any given change will produce much less variation in value than if confined to either gold alone or silver alone.

The third cause of variation I take to be legislation. There are some people who, apparently, are of the opinion that legislation ought to have nothing to do with the question of the value of a standard. That is entirely a delusion. The very term "legal tender" implies that the tender is the creation of law, and because a creation of law an artificial creation of the community. If each State is to legislate for itself without consultation with other States its action might throw the whole monetary interests of the world into confusion and produce an enormous variation in the standard. We desire to be stable.

I believe I am right in saying that at the present moment the great military powers of the Continent have over their gold reserves control of which we in this country have no notion. If peaceful relations did not exist I see no difficulty in a foreign government, by depriving us of our gold, producing disaster in the city of London. If we are dependent upon gold and silver that danger would be, if not removed, greatly mitigated.

One further quality. The standard should be international.

It is a mere relic of barbarism, a mere survival from the Middle Ages, that that which is legal tender in one country should not also be legal tender in another. Such an arrangement is ridiculous in the highest degree and detrimental to the interests of commerce, because changes necessarily throw a tinge of uncertainty into the affairs of every man who has business with a silver-using country.

And the existence of this great divergence between gold and silver does in certain circumstances most unquestionably act as a bounty upon production in certain classes of agriculture and manufactures.

Surely, if it can be shown that, as regards its stability, its accessibility, its internationality, a double standard is incontrovertibly better than a single standard, and that the evils which follow from a single standard are not obscure and theoretical, but menacing and insistent, touching every interest and every class.

We hitherto have been accustomed to boast of our isolation in matters of currency. Now we find ourselves trembling with apprehension at the course which may be pursued by this or that government, over which we have no control. We rightly claimed that we were the great commercial community of the world, trading with all countries, covering the seas with our fleets, taking toll of all nations, having commercial intercourse with all nations.

We now find that the world is dividied into gold-using and silver-using countries, that the whole mechanism of exchange between these countries is upset, that merchants who deal with South America or Mexico or China are hampered in their transactions, and find doubt hanging over every element which should determine their course of conduct.

We hitherto boasted ourselves as the upholders of the doctrine of free trade. We now find ourselves—through a system of currency in which, I fear, we did more than acquiesce—the unconscious, but nevertheless responsible, authors of a system of bounties which only differs from other systems of bounties established by less enlightened nations in the fact that the bounties are not given to those who are of us, but to those who compete with us.

We have claimed for ourselves that we led the van of commerce, because we were the great upholders of the single gold standard, yet there is not a man in the city of London at this moment who would not look with horror and apprehension at every other nation following so good an example. Let Germany, India and the United States try a gold currency, and a tremor seizes every one of our commercial magnates. They look forward, in the immediate future, to catastrophe, and feel that the ultimate result may be a slow appreciation of the standard of value, which is perhaps the most deadening and benumbing influence that can touch the entreprise of a nation.

I appeal to that portion of my audience whose minds are not yet made up on this question to reflect whether, of all subjects in the world which deserve international treatment, that of the currency does not stand in the very first rank.

I urge them to consider whether we can afford to lose out of circulation in the world the whole of that vast mass of silver which now does duty in oiling the wheels of commerce; whether we can contemplate without absolute terror the substitution of a gold standard throughout the world for the silver standard which now covers so large a part of it.

I ask whether they do not think that the great, preponderating opinion of the city of London ought to be thrown into the scale of those who desire to see some international settlement of this vast problem and the establishment—I would not say of universal bimetallism, for that, I believe, unnecessary—but of some system under which every great commercial community throughout the world would contribute its share, at all events, to maintain the stability of the value of silver.

A New Alloy.—The name of "iron-silver" has been given to an alloy of iron with other metals generally, and particularly with copper and zinc, the idea of a French inventor, according to "Money and Trade." Cast iron in the form of turnings, filings or powder is immersed in a bath of hydrochloric acid, through which is passed a current of carbonic acid. Currents of air and steam are afterward passed through the bath, and the liquid is drained through the residue, which is then dried and alloyed with other metals. The best proportions are: Iron, 35%; zinc, 24%; copper, 40%. The color of the new alloy is a silvery white.

MINING AT THE COLUMBIAN EXPOSITION.

Reported for the Engineering and Mining Journal by John E. Rothwell.

THE HENRY R. WORTHINGTON PUMPS.

At the Worthington Pumping Station, close to the southeast corner of Machinery Hall, can be seen in operation, and supplying the Columbia and electric fountains, several different types of pumps as used for city water supply. In the same building also is the Worthington underwriters' fire pump, which has been selected by the World's Fair Commissioners for fire purposes. In the general exhibit of this company in Machinery Hall a magnificent display of the various kinds of pumps, adapted to all the uses to which pumping machinery is required, is shown. They have in actual operation at this point a series of pumps furnishing in the aggregate 25,000,000 gallons daily of circulating water for condensing and other purposes. The Worthington independent condenser is also used in connection with all the principal engines in operation in Machinery Hall. Worthington pumps are also used to operate the hydraulic elevators in different buildings on the ground.

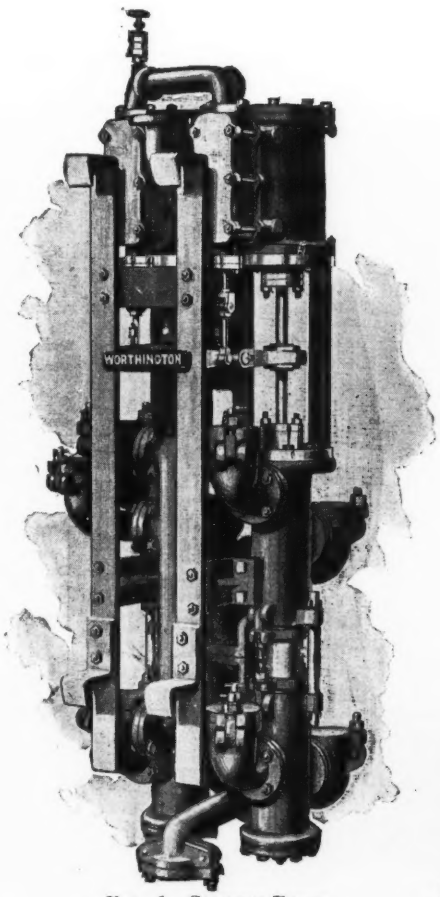


FIG. 1.—SINKING PUMP.

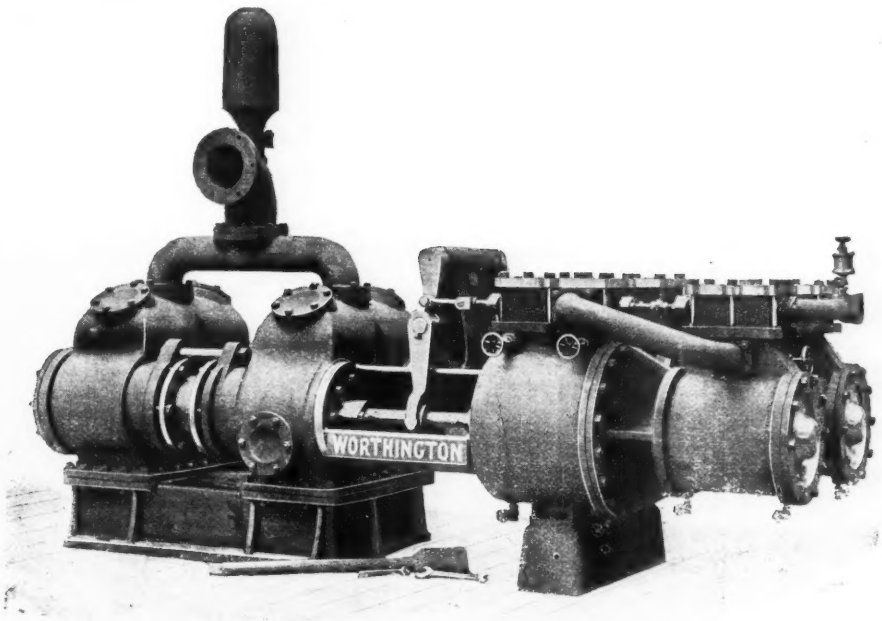


FIG 2.—COMPOUND PACKED PLUNGER PUMP.

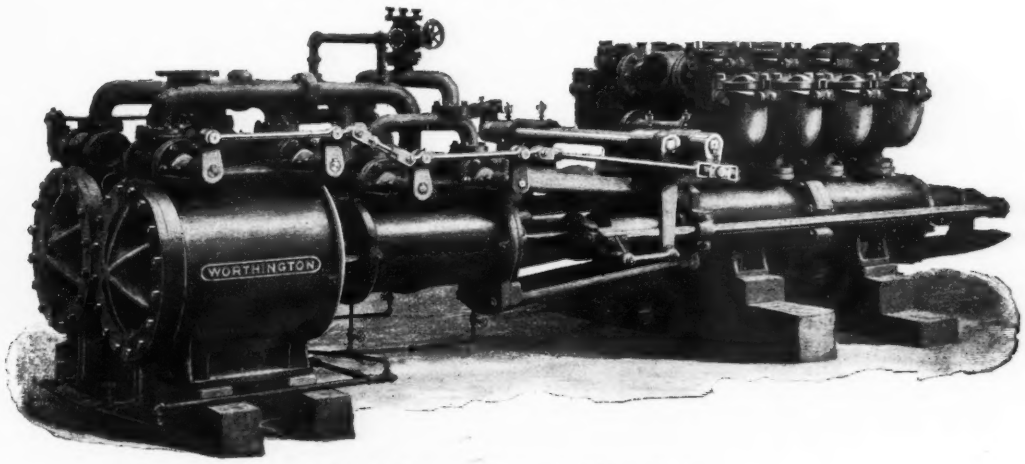


FIG. 3.—LEHIGH PATTERN MINE PUMP.

To give an idea of the extent of their pumping plant in actual operation, all told, it need only be remarked that they are now handling 100,000,000 gallons of water daily. Some extended tests of this pumping machinery are to be made later.

In connection with the large pumping station, the company has furnished handsome reception and reading rooms, and have given their friends a cordial invitation to avail themselves of this luxury. At the World's Fair office it is always prepared to give detailed information in connection with all classes of the pumping machinery. Among the special designs which will attract the attention of mining men are the duplex sinking pump, packed plunger pump and the Lehigh pattern compound station pump, all of which are illustrated and described below.

The sinking pump shown in the accompanying cut, Fig. 1, is designed for use in sinking mine shafts, recovering flooded mines and general excavation work requiring the employment of an efficient pump compact in design, positive in operation, quiet in action and built in the strongest manner possible, so as to withstand the hard usage to which pumps of this type are subjected. The fact that it is duplex and fitted with the Worthington valve motion makes its operation positive. It is always ready to start, and when running there is an absence of the concussive action which is common to single pumps, and which often causes serious trouble by bursting the column pipe or loosening the joints of the connections. This smoothness of operation also reduces the strain on the supports and hanging irons to a minimum. The two water plungers are double-acting, working through exterior stuffing boxes and adjustable packing. The suction opening is at the lower end of the pump, which is the most convenient place for attaching the suction pipe or hose. The discharge connection to column pipe is on the side. The water valves, which are made either of rubber or leather-faced metal, as desired, are inclosed in heavy pots and made accessible for examination or repairs by means of the swing bolt covers on the valve pots. All the followers on the water end stuffing boxes are held in place by swing bolts. The valve motion is placed inside, next to the shaft, and is protected from injury by the cradles between the steam and water ends. Means are provided for either suspending the machine at the link shown on the steam end or hanging it on suitable timbers on the sides of the shaft. The shaft space occupied is reduced to a minimum, being about the same as a single pump of equal capacity.

The packed plunger pump shown in Fig. 2 is a new design of the central packed plunger machine largely used in the anthracite regions for sinking and station work. There are two double-acting plungers, working in large exterior stuffing boxes. The water valves, of such material as to suit the requirements of the service, are easily reached by means of the large hand-holes provided on the water end, and the water end itself is subdivided, so that rupture from any cause at one point only necessitates a renewal of a part of the machine. A heavy bed-plate runs the entire length of the water-end, to which the water cylinders are bolted fast, and thus rigidity and correctness of alignment are obtained. This pump is fitted with the usual type of Worthington valve motion, which insures its quiet working under all circumstances. The pump shown here is furnished with compound steam cylinders, which can be made compound condensing by the employment of an independent condenser. These machines are also put up with simple high-pressure cylinders wherever desired. As stated above, this type of machine has found

great favor with anthracite mining companies, and large numbers are being contracted for from time to time.

The Lehigh mine pump shown in Fig. 3 possesses many points of marked superiority, and is used for station work in raising water from deep workings where economy in the expenditure for fuel, repairs and maintenance is sought. All of the details have been designed with special reference to strength, simplicity and easy accessibility to such parts as need occasional examination or repairs. The water end is designed with four single-acting, outside packed plungers, each pair of plungers being connected by outside rods fastened to heavy crossheads on the ends of the plungers. These rods work in guides for the purpose of guarding against unequal wear on the plungers. The water valves are contained in valve pots, and are reached by means of swing bolt covers, as shown. The steam and water-ends are connected by heavy iron cradles, provision being made for more than the usual amount of room for examining and packing the piston rods and plunger stuffing boxes. One of the most important features is the design of steam valves and valve motion. The steam valves are rotating plugs, and as this design enables the waste clearances in the steam end to be reduced to the lowest possible point the result is an increased economy in the consumption of steam, as compared with engines using the slide valve. The valve motion is exceedingly simple, and permits the steam valves to be reached for examination whenever necessary, without disconnecting or disturbing any part of the valve motion itself, which is a feature of considerable importance in mine station pumps on account of the close quarters in which these pumps are usually placed. Those who use pumps of the slide valve form, and have had experience in handling the large heavy steam chests, slide valves and balancing devices whenever examination of or overhauling the steam end becomes necessary, will see at once that the design of the pump shown is one possessing many points of marked superiority. When built compound condensing and run in connection with an independent condenser the highest possible economy is obtained, especially when taking into consideration the low first cost and expense of maintenance as compared with station pumps of the Cornish type. The first cost of the Worthington is about one-half that of engines of the Cornish type, and the expense for transportation, erection and construction of foundations is also much less. One of the important points in favor of the direct-acting station pump with the Worthington valve motion is its flexibility as compared with the Cornish pump, and the ease with which it can be run in cases of emergency, up to a capacity much greater than its usual rate. The design of the Worthington valve motion enables it to operate against the heaviest lifts with absolute quietness and with an entire absence of shock or jar on the connections or column pipe. Inasmuch as sudden accessions of water are always liable to be met with in the mines this is a point which is worthy of careful consideration by those who are contemplating the installation of station pump plants.

WYOMING IRON ORES.

In the note on this subject in last week's issue, in analysis No. 32, an unfortunate transposition of the types made it appear that this showed 0·550 phosphorus, a much higher percentage than should have been charged to it. The correct statement should have been: Iron, 66·070; silica, 3·280; phosphorus, 0·055; sulphur, 0·004; showing an excellent Bessemer ore. The other analyses showed no sulphur.

THE MINERAL PRODUCTION OF RUSSIA.

We are indebted to the courtesy of Mr. W. G. Abegg, of St. Petersburg, for the following table showing the mineral production of Russia for the fiscal years 1890-91 and 1891-92. The figures are from advance sheets of the official statistics compiled by Mr. S. H. Kowlibin, secretary of the Scientific Committee of the Mines. According to our custom, we have reduced the figures to metric weights, giving gold, silver and the rarer minerals in kilograms and the rest in metric tons.

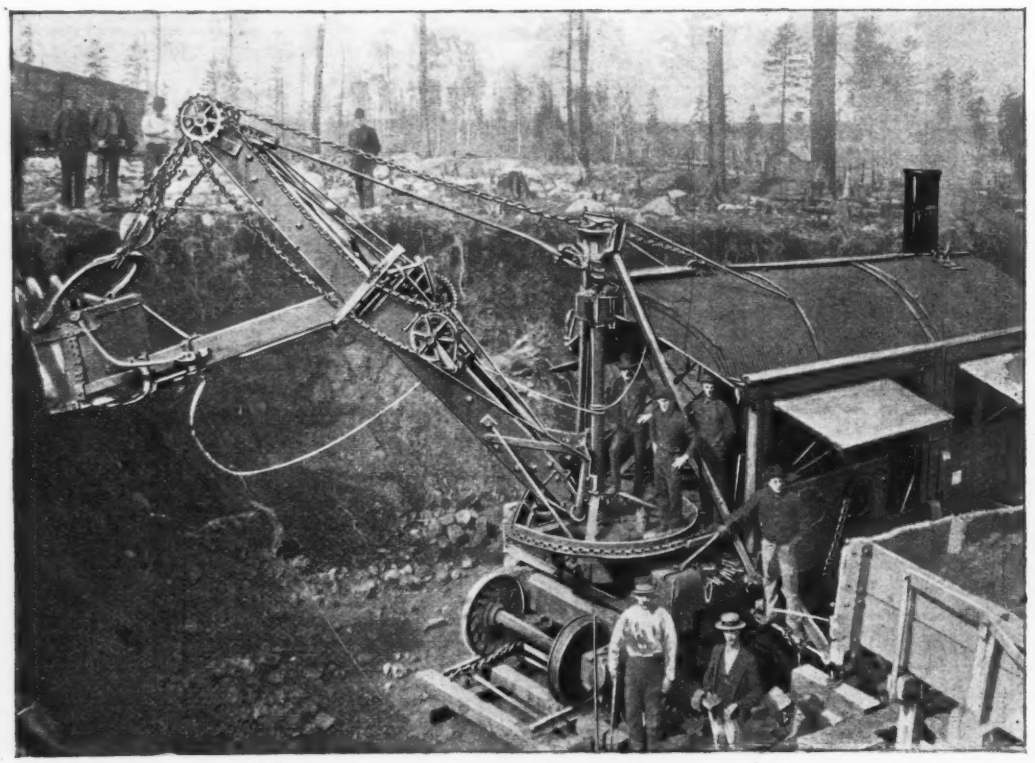
MINERAL PRODUCTION OF RUSSIA.

		1891-92.	1890-91.
1. Gold	Kilos	39,264	39,329
2. Platinum	"	1,237	2,817
3. Silver	"	13,710	14,560
4. Lead	Tons	558	837
5. Tin	Kilos	9,423	13,153
6. Spelter	Tons	7,066	7,645
7. Copper	"	6,687	7,036
8. Manganese ore	"	112,943	182,245
9. Cobalt ore	"	10	14
10. Chrome ore	"	3,093	2,365
11. Sulphur pyrites	"	18,331	17,124
12. Pig iron	"	919,614	861,420
13. Wrought iron	"	447,474	432,649
14. Manufactured iron:			
Castings	"	77,625	80,050
Telegraph wire	"	22,266	22,749
Enameled ware	"	4,524	4,727
15. Iron and steel forgings	"	103,611	111,983
16. Steel	"	305,003	260,430
17. Coal, bituminous	Tons	5,425,527	5,275,462
Anthracite	"	664,342	596,879
Bogbead (lignite)	"	135,544	145,125
Coke	"	349,160	295,572
18. Salt, rock	"	223,918	216,165
Lake, etc.	"	718,475	777,767
Salt factories	"	397,142	394,332
19. Petroleum	"	4,7·0,609	3,991,539
20. Quicksilver	Kilos	323,797	291,780
21. Sulphur	"	335,380	160,785
22. Glaubers-salts	Tons	3,927	3,267
23. Asphalt	"	14,022	11,505
Tar	"	2,701	2,215
24. Bitumen	"	2,877	3,910
Ozokerite	Kilos	6,380	7,362
25. Kaolin	Tons	5,185	4,521
26. Phosphorite	"	17,475	11,611
27. Asbestos	"	1,282	323
28. Graphite	"	164	164

It is of interest to add some particulars in relation to this production. The gold came from the Oural, Siberia, Orenburg and Finland; platinum from the Oural, and silver from Siberia, the Kirghiz steppes, the Caucasus and (a small quantity only) from Finland. Lead is produced in Siberia, the Kirghiz steppes and the Caucasus; tin in Finland and spelter in Poland; the spelter production included 3,672 tons blocks, 2,575 tons plates and 819 tons white spelter. Copper is reported from the Oural, the Caucasus, Siberia, Poland and Finland; manganese ore from the Oural, the Caucasus, Orenburg and Ekaterinoslav; cobalt ore from the Caucasus; chrome ore from the Oural and Orenburg; sulphur pyrites from the Oural, Toula, Novgorod and Towsk.

The iron and steel manufacturing districts are found in the Oural, Siberia, Orenburg, Moscow, Poland, South Russia and Finland. In manufactured iron certain special articles are noted in the table; telegraph wire is made in Riga, and enameled ware in Kalonga, Toula and some of the iron works in Poland. Included in the total under manufactures of iron and steel are 1,187 tons of gun forgings from the great forges of St. Petersburg and the Oural; 2,808 tons of projectiles from the St. Petersburg and Petrozawodski factories; 36 tons agricultural implements from Moscow and the Oural; 109 tons mine and light rails and 4,322 tons wire and nail-rods from the Oural; 9,050 tons nails from Vologda, Orenburg and the Finland forges. Of steel 171,805 tons were in the form of rails; 85,716 tons bars and merchant steel; 35,968 tons plates and 11,514 tons tires. The coal producing districts of Russia are Taganrog, the Donetz Basin, Kharkov, Bakhmuth, Poland, the Oural, the Kirghiz steppes, Siberia and Sakhalin.

The rock salt in the table is mined at Orenburg, in Ekaterinoslav, and at Erivan-Karsk, in the Caucasus. The salt from lakes and marshes is contributed by many districts, Astrakhan, the Crimea,



Surface Stripping on the Mesaba Range.

Kherson, Bessarabia, Kuban, Daghestan, Baku, Turgai, Ferghana, the Oural and Western Siberia. The salt factories are found at Perm, Arkangel, Bakhmuth, in Poland and Daghestan, at Yeneseisk Irkutsk and in the Trans-Baikal, in Siberia. Sulphur comes from Daghestan and Ferghana; glauber-salts from Tomsk, Tiflis and Turgai; phosphorite from Podolsk, Kursk and Kostroma; asbestos from Ekaterinburg; graphite from Yeneseisk, in Siberia. Kaolin is found in Volhynia, Tchernikoff, and the Crimea; quicksilver is produced at one point only, the mines of Zaizewo, owned by Auerbach & Co.

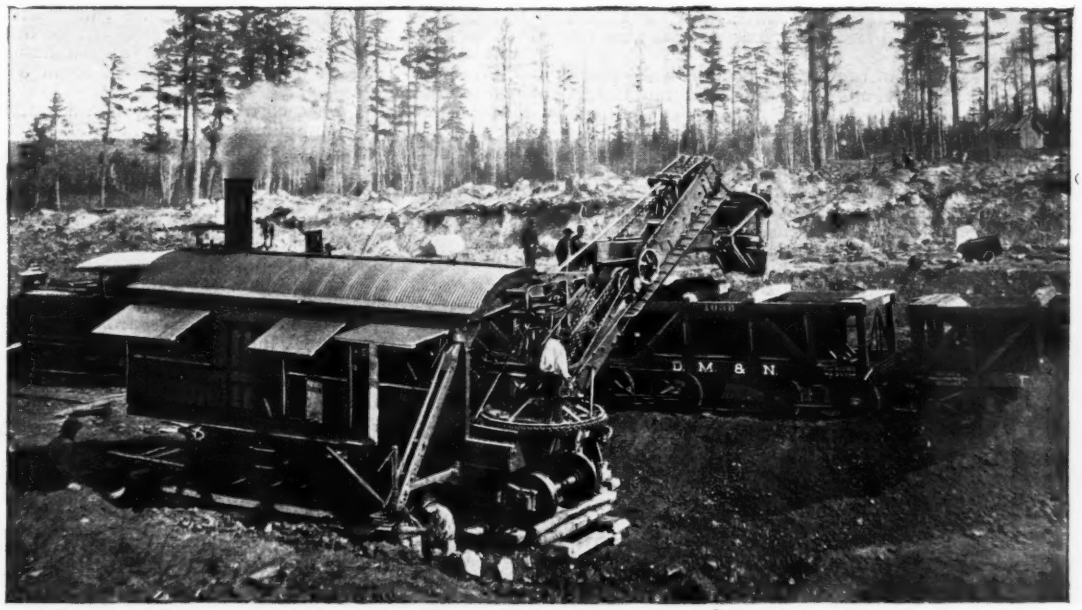
The Baku district is the great producer of petroleum, and also of bitumen and asphalt, but petroleum is also found in Daghestan, Tcheleken Island, the Crimea, Tiflis, Terghana and Kuban; asphalt at Simbirsk, Kazan and Kutais; bitumen at Tiflis and at Bala and Ishim, in Siberia.

The important share which the Asiatic possessions of Russia, Siberia and the Trans-Caspian, and the border districts of the Oural and the Caucasius, contribute to its mineral production will be noted.

IRON ORE MINING ON THE MESABA RANGE.

Written for the Engineering and Mining Journal by D. E. Woodbridge.

The illustrations given herewith are from photographs showing the method of mining iron ore by a steam shovel, as it is now practiced on the Mesaba Range, near Duluth, Minn. The first view is of the stripping or removal of the earth above the ore body; this earth is vegetable mold, glacial drift, clay, small bowlders, etc. The particular shovel was at work where the surface soil is about 18 ft. deep, or deeper than at any other point on the part of the mine now worked. This point is some 600 ft. from the further end of the strupping, where the second photograph was taken; at that point the stripping is only



MINING IRON ORE WITH A STEAM SHOVEL ON THE MESABA RANGE, MINNESOTA.

about 4 or ft. thick. This view shows the actual mining operation, the large shovel in the foreground being at work on a face of ore directly ahead of it and some 10 ft. high. The dipper of the shovel is raised, holding a trifle over 2 tons, turned over the cars, standing beside it, and the ore dropped into the cars. The illustration shows the shovel in the act of discharging the load of ore into a car, which, as will be seen, is already half full of ore. In this illustration the surface of the ground is shown in the background, rising toward the right. The level below this, and toward the cars, on which lies a broken dipper, is the stripped surface of the ore. The railway track and shovel are set in an excavation in the ore bed from 8 to 10 ft. deep.

At this mine a train of 14 ore cars, of a capacity of 25 tons each, are backed in on the level track, and the single shovel, located at the outer end, fills 12 cars an hour with little trouble. Eleven dippers fill a car, and the train is then pulled ahead one car length. The surface of the ore rises toward the inner end of the stripping, so that a shovel at that end, on the level of the track, would work, theoretically, against a 65-ft. breast of ore. The Oliver Mining Company pays the State and the Mesaba Mountain Company royalties amounting to 65 cts. a ton on all ore mined.

The illustrations will also show, in a general way, the method of work in use at the Biwabik and the Mountain Iron mines, one 10 miles east and the other 5 miles west of Mesabe Mountain. They show also how cheaply these ore deposits can be worked, no sinking of shafts, no timbering and no hoisting machinery being required. The operation of the steam shovel and the shifting of the tracks from time to time are all the work needed as long as the ore deposit lasts.

The Production of Iron in Finland.—The iron industry of Finland is not extensive; there are eight furnaces in the Abo district, eight in Nujaud, five in Knopen, and eight more in various parts of the country.

THE MINING EXHIBITION AT SANTIAGO, CHILE.

In view of the stagnation of the mining industry of Chile the Government of that country some time ago decided to hold a mining and metallurgical exposition, in order to promote domestic interest in that most important industry, and to call attention of foreign investors and manufacturers to the mineral resources of the country. The government asked the Sociedad Nacional de Mineria (National Mining Society) to formulate plans for the exposition. The society has submitted the following:

The exposition will be held in Santiago, and will open on March 15th, 1894, so that exhibitors now at the World's Fair at Chicago may send their goods to Chile with little trouble. The object of the exposition is to show the progress of the mining and metallurgical industries, and especially of the processes, machinery and tools that may be applied to the working of Chilean mines. It is suggested that only the models or plans (drawings) of the heavy machinery, motors and boilers be shown. The committee desires the exhibition of the following: Machinery such as petroleum engines, air compressrs, Pelton or other wheels, for the utilization of small volumes of water at high altitudes, electric motors, etc.; dynamos, for the transmission of power, for lighting and for electrolysis; drills, worked by hand, by electricity and by compressed air. Drills for deep-boring; pumps, lifting and mining machinery; crushers and pulverizers; high explosives for mines; concentrating machinery, worked by means of wind or water power; small plants for the wet treatment of copper ores, lixiviation, Russell process, etc.; tanks and pumps for electrolysis, and the materials employed in the electrolytic process; furnaces, smelting, calcining and roasting; apparatus and machinery for the transportation and shipment of ores; wire tramways, etc.; processes, metallurgical and industrial, for copper, zinc, lead and tin; sulphuric acid industry; Babier apparatus and other apparatus used in the extraction and working of saltpeter, iodine and other salts; laboratory supplies and reagents; scientific instruments used in the mining industry; tools, etc., used in mines; ventilating apparatus, life-saving devices, lamps, etc; mineralogical collections; statistical data, plans, drawings, catalogues, etc.

The space needed will be given to domestic and foreign exhibitors who apply for it before January 1st, 1894. They will be furnished with motive power. The society also asks the Government to pay the freight on the exhibits from a port in Europe or the United States to Santiago. The date for closing is April 30th, 1894.

The Poetsch Process at the Anzin Mines, in France.—It has been decided by the company working the Anzin mines to sink, by means of the Poetsch process, two new shafts in the district of Vicq, in the southern part of the concession they have obtained. The two shafts will have internal diameters respectively of 12 ft. and 16 ft., and will constitute a perfect coal installation. One of them will serve for the raising of the materials, and the other for ventilating purposes. They will pass through nearly 300 ft. of water-bearing strata. It is the first time, says the "Annales Industrielles," that so bold a method of sinking has been adopted, but the freezing system gives every hope of a successful termination to the work. After investigating the merits of different plans and proposals, the Anzin company decided to intrust the operations to the well known Cail firm. Their freezing apparatus, of the Linde type, which uses anhydrous ammonia, is a very powerful machine, and has been proved by experiment to be equal to the production of four tons of ice per hour. Presumably the conditions prevailing are similar to those accompanying the experiments made, with a similar object in view, by other parties interested in the process. The enormous quantity of cold—if we may use the phrase—which would effect the congelation of four tons of water per hour, will be distributed through the soil by means of 36 hose pipes, 300 ft. in length, and distributed round about the circumference of the intended shafts, so as completely to embrace them.

THE ENGINEERING CONGRESS AT CHICAGO

In our last week's report we gave an account of the first and second days' proceedings of the Congress, supplementing it by abstracts of a number of the more valuable papers read in the Mining and Metallurgical sections We give in the present number additional abstracts of several papers read at the meetings, some of which are of great value.

On the third day, August 2d, in the Mining Section, the general subject was ventilation and safety in mines. Papers were read on the detection of firedamp by Professor Chesneau, of Paris, and Professor Clowes, of Nottingham, England, and on ventilation by D. Murgue, of Besseges, France. A number of papers which had been read on the previous day were discussed.

In the Metallurgical Section the subject was the composition and treatment of steel. F. Osmond, Paris, France; Prof. A. Martens, Berlin, Germany; Alexandre Pourcel, Paris, France; Albert Sauveur, Chicago, and H. M. Howe, Boston, presented papers. Mr. Sauveur's paper is given on the following pages. The valuable paper of Mr. Martens is necessarily postponed, since the great number of illustrations prevented us from giving both papers at once.

The papers read at the session of the Civil Engineers on the same day were on a very similar subject, the use of steel for structural purposes, and the discussion ran on nearly the same lines. It is to be noted that in the Military Section also the papers and discussions were on an allied subject, gun construction and the best metal for use in high-power guns.

On Thursday, August 3d, the subject of steel was to some extent continued, the special topic being the manufacture of steel. Professor Akermann, of Stockholm, described, in an interesting manner, the Bessemer process as conducted in Sweden. The paper was discussed by the members of the congress with much spirit. A valuable paper on the open-hearth process for steelmaking as conducted in the United States was read by H. H. Campbell, of Steelton, Pa. It was also followed by a discussion.

The general subject for discussion in the Mining Section was miscellaneous mining. W. H. Case, of Bertha, Va., described the Bertha zinc mines. This paper was discussed by a number of eminent miners and geologists. The congress then discussed a paper contributed by O. Bilharz, of Berlin, Germany, on improvements in ore dressing. F. O. Blackwell, of Lynn, Mass., read a paper on electricity in mining, which aroused much interest and was discussed at length.

On August 5th the first paper read was that of Mr. Stetefeldt on the fuel consumption at the Aspen and Marsac plants. This was followed by a paper on new processes for the Production of Pig and Refined iron, by Mr. A. Sappmann, of Donawitz, Bohemia, his process being specially intended for those cases where iron ores are found at a distance from the supply of fuel. Another paper read was "The Review of American Blast Furnace Practice," by E. C. Potter, of Chicago. Interesting papers on "Sulphur in Cast Iron," by W. J. Keep; on "Blowing Engines," by Julian Kennedy, and on "Advances in Pyrometry," by W. C. Roberts Austen, were also read.

Eckley B. Coxe, of Drifton, Pa., opened the session of mining engineering with a paper describing a furnace with automatic stoker traveling grate. The paper was discussed by the meeting. H. Le Chatelier, of Paris, contributed a paper concerning tests of hydraulic cements, which was discussed by Prof. John Goodman, of Leeds, England, after which the meeting took up the discussion of papers previously read.

At the closing general session on August 5th the chairman and secretaries of the different sections presented brief reports on the work done. Then followed a series of brief addresses by foreign delegates.

The first speaker was Professor Unwin, of London, England, who said in substance:

This is the first engineering meeting in my recollection in which there has been a recognition of engineering education as an important subject. You have not only recognized it; you have given it a place equal in importance to that of the great branches of engineering. You, of America, are in a favorable position to take up this subject from the fact that through the munificence of money of your citizens you have magnificent endowments for engineering education. I think you are solving a most interesting problem, that you are taking an entirely new step in the work of the engineer in recognizing the necessity of a foundation of scientific education for engineers. The earliest engineers accomplished their work by force of genius, with an almost entire ignorance of scientific knowledge. Most who followed them learned their science by the chances of the workshop. Now we are coming to realize the value of schools to give knowledge in our profession. Mr. Unwin spoke words of praise for the American professors of engineering, and in closing remarked that the foreign delegates would go back to their homes with the impression that they had a great deal to learn from their American brethren.

A. Flamant, of France, delivered his address in his mother tongue, and the chairman interpreted it to the audience. He said one of the principal things that had attracted the attention of the French delegation was the boldness with which American engineers, unhampered by tradition, were solving most difficult problems of engineering. The Frenchmen were surprised also at the marvelous rapidity with which the Exposition had been brought together, and among other things that had interested them was the progress that had been made in sanitary engineering in this country. They would take home with them a vast fund of valuable information obtained on the soil of America.

Professor Hartmann then made a speech in behalf of the German delegates, expressing their congratulations upon the success of the engineering congress. He was followed by Professor Reuleaux, of Paris, who had warm words of praise for Director of Works Burnham and his assistants for the success that they had attained in the fields of art and architecture at the Fair.

Among the other foreign delegates who in like manner entertained the company with brief and pleasant speeches were Senor Soliana, of the Italian Navy; Professors Bosnessensky and Rycerski, of Russia; Prof. William Ritter, of Switzerland; Alfred van der Stagen, of Belgium; Mr. Capacci, of Italy, and T. Bergendal, of Sweden.

Chairman Chanute then, with brief and appropriate remarks, declared the World's Congress of Engineers closed.

As will be seen, we have noticed in our condensed account chiefly the proceedings of the mining and metallurgical engineers, but many interesting papers and discussions were held also by the civil and mechanical engineers, and in the Congress on Engineering Education, while the Congress on Water Navigation also had many points of interest. This was one drawback to the holding of the different meetings at the same time, preventing many from hearing as much of the proceedings as they would have desired to. Moreover, the programmes presented were so full that the discussions were necessarily limited as to time, and the amount of valuable matter presented was so great that it was hardly possible to appreciate it all.

We continue below the abstracts of papers read at the meeting.

THE MICROSTRUCTURE OF STEEL: BY ALBERT SAUVEUR, SOUTH CHICAGO, ILL.

The following propositions are intended to present, as concisely as possible, some of the evidences gathered while studying the microstructure of steel. Each proposition is accompanied by photomicrographs showing the structure of illustrative samples. But it must be understood that the special instances thus chosen for illustration are by no means the only ones on the examination of which the propositions are based. On the contrary, they have been taken almost at random among a great many, in some instances more than a hundred, similar cases.

Proposition I.—Undisturbed cooling from an initial temperature x or higher produces crystallization. Plate I., Plate II., Fig. 1, and Plate V., Figs. 1, 2, 3 and 4 show the crystalline structure of several pieces of steel. Plate I. reveals this structure in the center of a slowly-cooled Bessemer ingot, 1·5 ft. from the top. Plate II., Fig. 1, is from a small 2-in. square test ingot of the same heat, slowly cooled. Plate V., Figs. 1, 2, 3 and 4 show the structure of different parts of steel rails. The original photographs were all magnified 70 diameters, and have been reduced in engravings to 63, or to 55 diameters, as shown in the plates.

Proposition II.—Undisturbed cooling from an initial temperature lower than x is not accompanied by crystallization. Plate III., Fig. 5, shows the structure of a piece of steel rail forged from a white heat until it had fallen to dull red. The structure is almost amorphous. Practically no crystallization has taken place during the subsequent cooling.

Proposition III.—The temperature x varies with the chemical composition of the steel. Each impurity (at least carbon and phosphorus) lowers x, although in widely different degree. Plate II., Figs. 1 and 2, shows the structure of two small test ingots of the same size and shape cooled down from the same initial temperature. They have practically the same composition, except as regards carbon, the former being a steel rail with 0·40 C., the latter a soft steel with 0·10% C. Plate II., Figs. 3 and 4, exhibits the structure of two pieces of steel similarly treated and varying in composition only by their percentages of phosphorus, which are respectively 0·145 and 0·063. It will be noticed that the high-phosphorus and high-carbon steels have respectively a much larger grain than the low-phosphorus and low-carbon. The crystallization of the former has kept on (the grain has continued to increase) long after it had ceased in the latter. Carbon and phosphorus and probably all impurities, at least when present up to a certain amount, increase the size of the grain. Carbon, by increasing the amount of carbide of iron (which is the hard constituent of steel), confers hardness and strength on the metal; by increasing the size of the grain it causes decrease of ductility and eventually brittleness. This, of course, can be diminished to a great extent by proper heat treatment. The purer the steel, the higher the finishing temperature can be without causing coarse crystallization. Properly conducted experiments might teach us what this temperature is for various chemical compositions; and the knowledge would be extremely valuable. It would tell us at what temperature a steel of a given chemical composition should be finished, in order to avoid an objectionable crystalline structure.

Proposition IV.—The higher the initial temperature from which the steel is allowed to cool undisturbed the larger the grain for a given composition. Compare Plate I. and Plate II., Figs. 1 and 2. Plate II., Figs. 1 and 2, shows the structure in the center of the head of two rails finished respectively hot and cold. They have the same section and were rolled from the same heat. The influence of the initial temperature on the size of the grain is here well illustrated.

Proposition V.—The slower the cooling, the larger the grain for a given composition. Compare Plate I. and Plate II., Fig. 1. The initial temperature was the same. Both ingots are from the same Bessemer heat. The smaller grain of the small test ingot is due to its more rapid cooling. Finished pieces of steel will have a coarser grain in those places which have been finished hot-test, and where subsequent cooling has been more gradual.

Proposition VI.—The size of the grain is independent of the amount of work the metal has received. If two test-ingots taken from the same heat one, say, 4 in. and the other 2 in. square, are forged down to, say, 1 in. square, the bar reduced from the larger ingot will show the smaller grain (Plate III., Figs. 1 and 2). At first it might be inferred that the smaller grain is due, partly, at least, to the greater amount of work received by the larger ingot, but we believe it is caused only by the lower temperature at which that bar was necessarily finished; for if, instead of being left to cool slowly after forging, from their respective temperatures, both bars are similarly heated, say to a bright red, and then slowly cooled, they will take the same structure (Plate III., Figs. 3 and 4). This, at all events, is an argument in favor of the non-existence of a "special effect of work." Work as such seems to have no effect on the grain of the steel; and it is hard to understand how a treatment which does not alter the structure of a metal can influence its physical properties.

For a given chemical composition, the higher the finishing temperature of the rail and the slower the cooling, the more pronounced will

PLATE I. FIG. 1.

FIG. 1.

FIG 2.

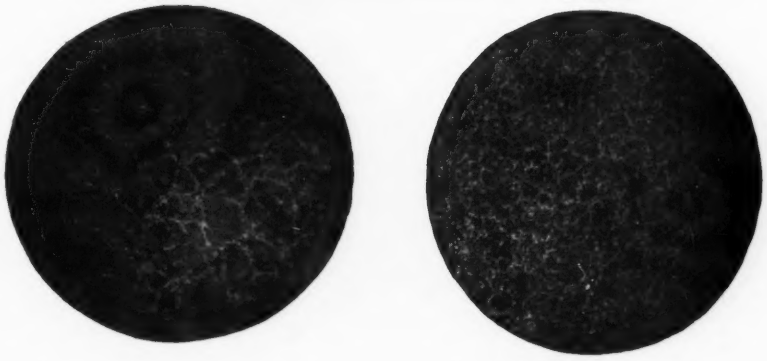


FIG. 3.

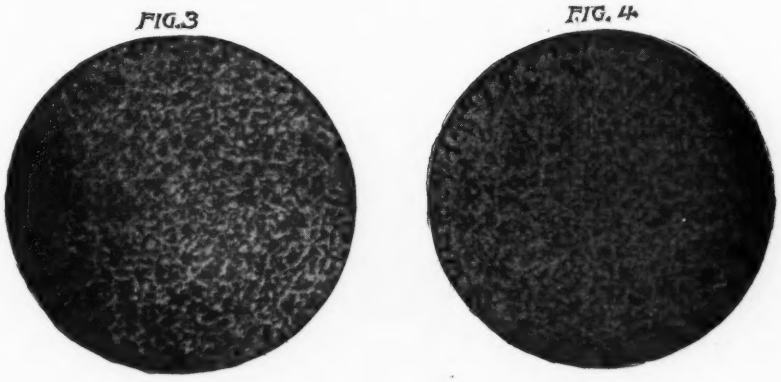


FIG. 4.

PLATE II.

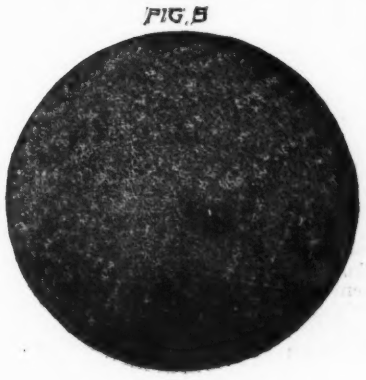


PLATE III.

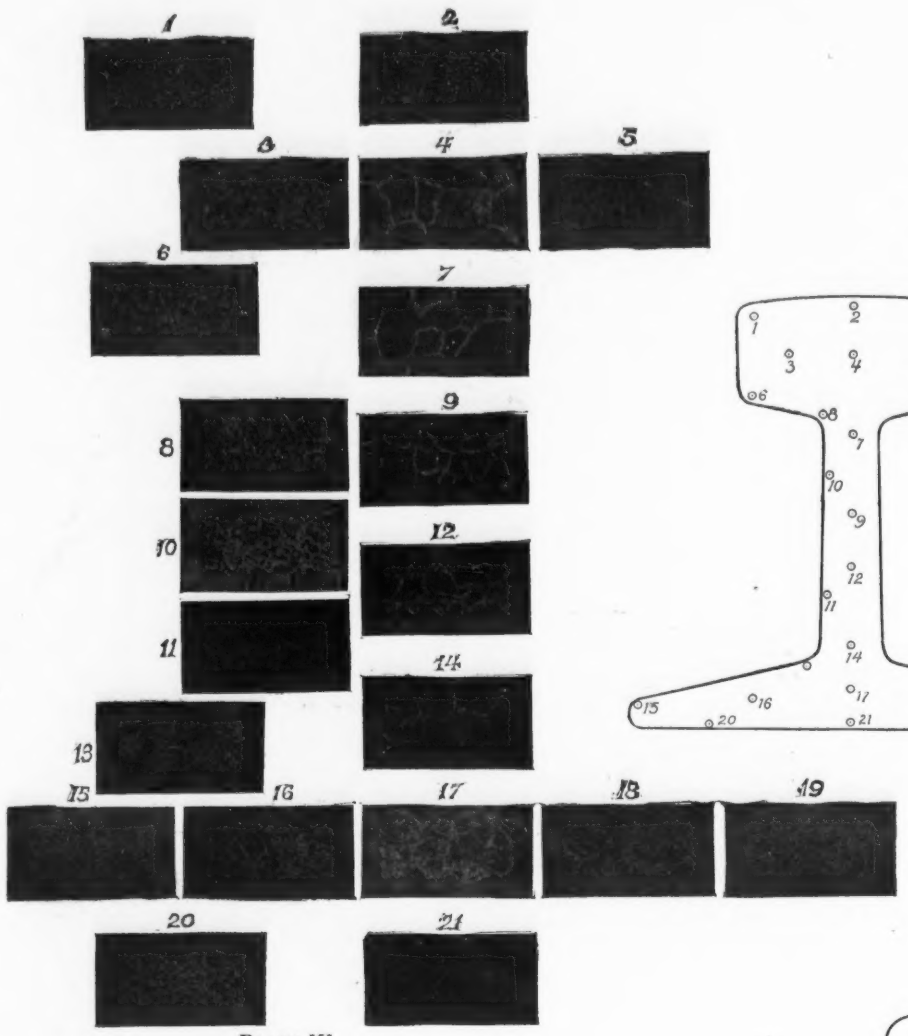


PLATE IV.

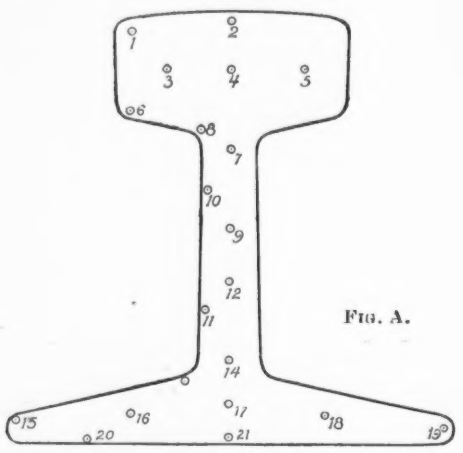


FIG. A.

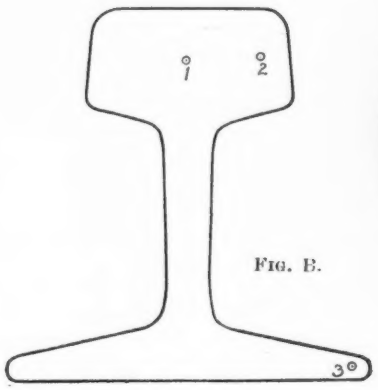


FIG. B.

FIG. 1

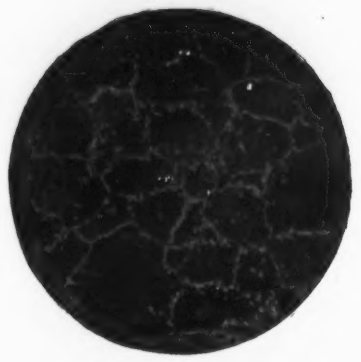


FIG. 2

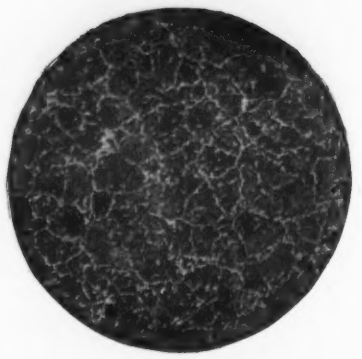


FIG. 3

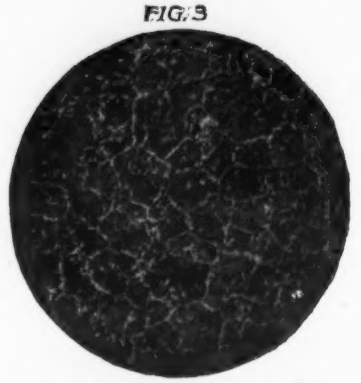


FIG. 4

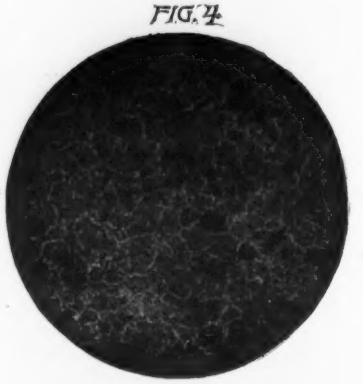


FIG. 5

FIG. 6

PLATE V.

THE MICROSTRUCTURE OF STEEL.

be the crystallization. It follows also that the heavier the rail the more crystalline will be its structure; for it will generally be finished hotter than a lighter one. Plate IV. shows the structure of 21 different portions of the transverse section of a rail. With the plate is an outline of this section, with corresponding numbers indicating the spots where the photographs were taken. The enlargement is 33 diameters. The rail was finished fairly hot. The section is 80 lbs. to the yard. As we proceed inward toward the center of the head we notice how the structure, at first very close, gradually becomes coarsely crystalline. The photographs of Plate V. show these different structures perhaps more plainly. They were taken at the spots marked 1, 2 and 3 in the accompanying outline of the section.

It is a necessary consequence of such variations of structure that the physical properties of the different parts of the rails should vary

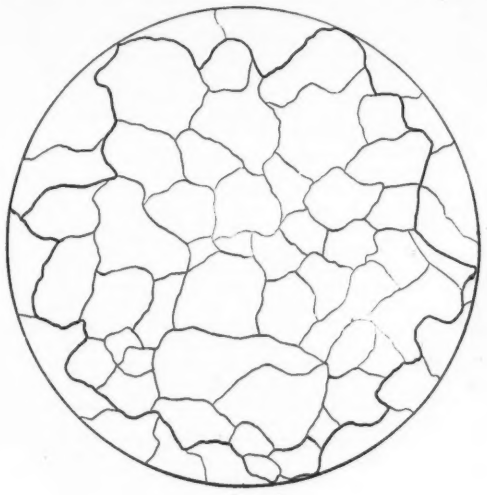


FIG. 1.

to be made up of three constituents, namely: ferrite, cementite and pearlyte. Ferrite is iron free from carbon. Cementite is iron with cement carbon, probably a carbide answering to the formula Fe_3C; it is a hard constituent of steel. Pearlyte, when examined under high power (at least 300 diameters), shows itself to be a mixture made up of very thin plates alternately of ferrite and cementite in the proportion of two-thirds ferrite to one-third cementite. It has a pearly appearance, whence its name. It seems as if during slow cooling the ferrite and cementite combine, as far as possible, leaving an excess of ferrite or of cementite, as the case may be.

We have seen that all steels crystallize when allowed to cool undisturbed from a sufficiently high temperature. This crystalline structure is composed, roughly speaking, of grains of pearlyte surrounded either by ferrite (in the case of soft steel or steel of medium hardness) or by cementite (in the case of harder steel). A section cut at any angle through the metal will exhibit what we may call a network structure, the pearlyte forming the meshes, the ferrite or cementite the network itself. In the case of very soft steel the grain is very small and the proportion of ferrite is considerable, but we may still compare the structure of a section cut through such a steel to a network

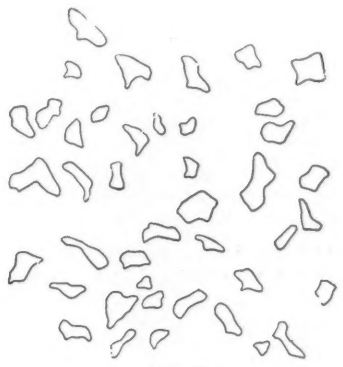


FIG. 2.

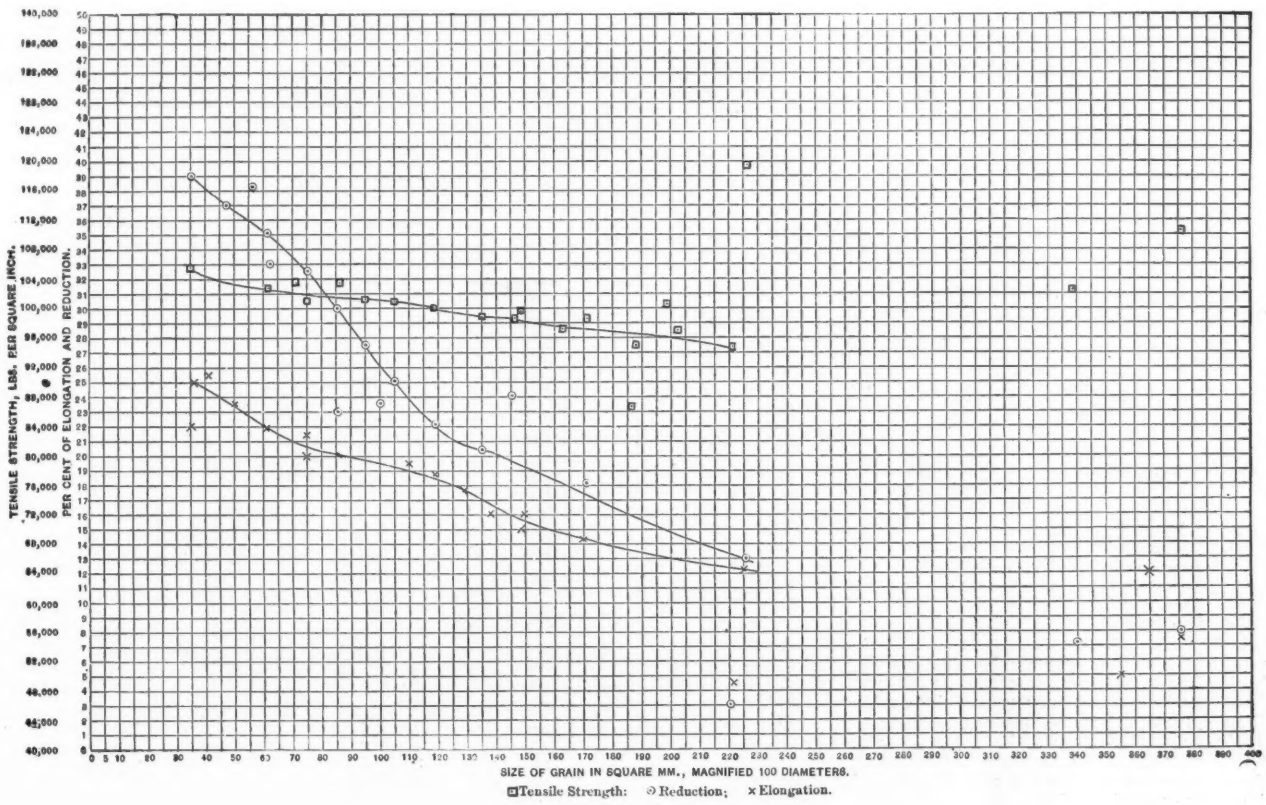

TENSILE STRENGTH, LBS. PER SQUARE INCH.
PER CENT OF ELONGATION AND REDUCTION.
SIZE OF GRAIN IN SQUARE MM., MAGNIFIED 100 DIAMETERS.
Tensile Strength: Reduction; Elongation.

FIG. 3.

accordingly. As might be expected, the crystalline structure of the center of the head will show less power of elongation and of reduction of area than the closer structure of the side of the head, and especially of the extremities of the flange. Test-bars were cut from three different locations and submitted to tensile strain. The results agreed remarkably well with the microscopical evidences.

Plate V., Figs. 2, 4 and 6, are from a cold-finished rail. They exhibit the structure in the middle of the head, the side of the head, and the end of the flange respectively. If we compare them with the corresponding photographs of the hot-finished rail (Plate V., Figs. 1, 3 and 5) we see that in each case their grain is smaller. Both rails have the same section and were rolled from the same heat.

In this paper the author uses the names given by Dr. H. M. Howe to the different constituents of steel described by Dr. Sorby. It will, perhaps, be well to briefly recall their meaning. As far as the microscope has been able to ascertain; all steels not quenched seem with small meshes and an exaggerated net. Now, the physical properties of a sound piece of steel depend:

1. On the proportion of pearlyte and perrite, or pearlyte and cementite, present in the metal (and this is governed solely by the percentage of carbon); and

1. On the proportion of pearlyte and ferrite, or pearlyte and cemenical composition, and heat treatment.

With steel of average hardness, the amount of ferrite is very small; the grains are in close contact, and the work of measuring can generally be much shortened by neglecting altogether the area occupied by the network itself. All that is necessary then is merely to follow with the planimeter the outline of the space, including all the full grains visible in the field of the microscope, to count them out and to figure the average area. As an illustration, we have drawn in Fig. 1 the grains of a steel rail magnified 100 diameters. All the visible full grains are included inside the heavy line. The area limited by that

line is found to cover 10,940 sq. mm., which, divided among 45 grains, gives 243 sq. mm. for the average.

In dealing with soft steel, this method is no longer possible. It is then necessary to measure individually a sufficient number of grains. Fig. 2 shows the grains of a soft Bessemer steel containing 0·11% carbon, magnified 500 diameters. By measuring each of the 41 individual grains, we find a total area of 1,650 sq. mm., which gives an average size of 40 sq. mm., or, if reduced to an enlargement of 100 diameters, 1·6 sq. mm. Most of the test-bars were cut ¾ in. square and 20 in. long. A thin section was cut at one end of each test, polished, etched and its grain measured. The tests were then subjected to tensile strains; and the maximum load in pounds per square inch and the elongation and reduction per cent. were recorded.

At this early stage of our experiments, we can only publish the results we have obtained for rail steel. These are shown in the accompanying diagram, Fig. 3. Even here we must stop our curves when the grain reaches 225 sq. mm., since for larger grain the number of cases plotted has been too small to determine the curve. The lines of reduction and elongation follow remarkably well the changes in the size of the grain; both falling rapidly as the grain increases, and the reduction diminishing more rapidly than the elongation. The size of grain does not by any means so much affect the tensile strength. The fall of that line is very gentle. The grain increasing from 35 to 221 sq. mm., i. e., six-fold, the corresponding decrease of tensile strength is only about 10,000 lbs.

Will the tensile strength curve continue to fall with further increase of the grain? If we consider the only two cases plotted we notice a decided change, but many more tests must be made to reach a conclusion. The results obtained show that there is a constant relation between the size of the grains and the properties of the metal. They constitute, however, only the first step toward an extensive series of experiments; but they have already given much useful information, and thrown much light on the way steel is affected by heat treatment.

The specimens illustrated were prepared by Mr. W. C. Post, of the Illinois Steel Company, who assisted in all the experiments recorded.

AMERICAN BLAST FURNACE PRACTICE, BY E. C. POTTER, CHICAGO.

The present blast furnace practice dates practically from the completion of Furnace A of the Edgar Thomson Steel Company, in 1879, which introduced rapid working and large outputs, but at first without much regard to economy in fuel. Experiments to reduce the fuel consumption were made at the South Chicago furnaces or the North Chicago Rolling Mill Company in 1885, with important results which have been already recorded. The general adoption of the Bessemer steel process made it necessary to obtain iron as low in silicon and sulphur as possible and obliged furnace men to exercise greater care than before, and was an important factor in improving the general practice. The article is chiefly devoted to the Edgar Thomson and the South Chicago furnaces, which have been selected as types, and its general conclusions are as follows:

In modern American furnace plants we find each stack built and operated separately and distinctly from its sisters. Even the custom of working furnaces in pairs from the same hoist is no longer considered the best practice, because an accident to the hoist would affect two stacks instead of one. Instead of the single gigantic engine we find two or even three independent engines provided for each stack; and in plants of two or more stacks the air receivers are so connected by a system of valves that any one engine in the house may be applied to any one of the stacks. Each boiler, or at least each pair of boilers, is provided with a chimney, so that here almost complete independence exists, the only part of the apparatus common to all being the main gas flue. Even in case of failure of this, it is possible to fire each boiler with fuel independently. While the majority of the hot-blast stoves now in use are so constructed that a common chimney is necessary, yet there are a number of new types of stove that are provided each with its own chimney,—a feature, in my estimation, of great value, as it renders each of the stoves attached to a furnace entirely independent. A furnace thus equipped could suffer the temporary loss of an engine, a stove and two or three boilers without interruption in its operation.

The external appliances being thus provided for, the maintenance and prolongation of the life of the interior of the furnace—the lining—has in recent years received the earnest attention of furnace managers. The use of water-cooled plates, inserted in the lining and about the wall of the furnace, illustrates the ingenuity and courage of the modern furnace-engineer, for the juxtaposition of cold water and molten iron, separated by a film of metal a fraction of an inch in thickness, is, at first glance, rather startling. By their aid the life of the lining has been materially prolonged, and, more valuable still, the lines of the boshes are steadily preserved at something near their original contour, thus greatly assisting in maintaining uniform performance of furnace operations. The performance of the Edgar Thomson furnaces is a remarkably instance of this.

In the daily operation of the furnace no detail is considered too insignificant for careful study and improvement, since any one of these details may prove to be a point of vantage over a competitor. In this way the smelting of iron in this country has been perfected. The inspiration of such progress has been an emulation peculiarly American. In this country, with few exceptions, all works are open to visitors, native and foreign alike, and the interchange of ideas and experiences between managers is free and unreserved.

Reduction of Potassium Platinum Chloride.—In the "Zeitschrift fuer Analytische Chemie." Dr. Borntrager describes a new method of reducing the platinum from double chloride of platinum and potassium. The compound is dissolvel in boiling water and liquid potash soap added. A smeary and sandy colored clot, consisting of a double salt of potassium chloride and platinum oleate, is precipitated. The remaining solution is decanted off and the precipitate is ignited in a porcelain crucible. In a few minutes a platinum black is obtained which can be readily be entirely freed from potassium chloride by washing with hot water.

TESTS FOR PURITY OF DRINKING WATER.

Written for the Engineering and Mining Journal by Francis Wyatt, Ph. D.]

When chemists apply the word "pure" to water, they, of course, only do so in a comparative sense, because perfectly pure water does not exist in nature. Even in its primary form of rain it contains some traces of ammonia and nitrates derived from the atmosphere, and it always becomes more or less charged with earthy and saline matters before it reaches the streams. The rivers are charged with impurity and refuse from towns on their banks, and the water becomes gradually more dangerous; and, although it is somewhat purified by oxidation and the absorbent action of vegetation, it requires the most conscientious and watchful care in the reservoirs of great communities.

All upland surface waters vary in quality, in accordance with the nature of their surrounding conditions, but they are characterized as "pure" and accepted as satisfying all necessary conditions for drinking and household purposes, when they have no disagreeable taste or smell; when they are only of medium hardness and are free from excess of salt, and when they have no poisonous minerals and only a minimum of organic contamination.

In order to ascertain whether or not a given source of water really fulfils the needed requirements, it must be subjected to the closest scientific scrutiny, for little reliance can be placed upon the public taste. Nothing less than the determination, within reasonable limits of accuracy, of the amount of matter in the water foreign to the water itself, and of the probable origin of the impurities, is of much public value, and this determination is only rendered possible by accurate chemical and biological examinations. It is no exaggeration to say that, from a sanitary standpoint, the difficulties in the way of assigning proper importance to the various ingredients discovered in an analysis are well nigh insurmountable. In fact, so great are they that careful chemists invariably make their reports and conclusions only after comparing their own conditions and results with the results recorded for similar conditions over a long period of years by established authorities.

The main causes of perplexity and doubt are not the inorganic salts which all drinking waters contain in more or less abundance, but those complex and enigmatical bodies which have come to be classified under the heads of organized and unorganized organic matter. The real difficulty in the sanitary analysis of a water is to show: First, how far it is contaminated with bacteria or micro-organisms; and, second, to what extent it is capable of affording nutrition to such organisms in the form of readily decomposable feeding material. There being no prescribed rule of general applicability by which the interpretation of a purely chemical analysis of water can be made by the ordinary reader, the mere publication of certain analytical results, even by the best authorities, are practically without significance, since they are commonly unaccompanied by any detailed and intelligible or popular explanations.

The following figures approximate what I regard, after a wide experience, as the typical salient points in a perfectly safe surface water: 100·000 parts of a potable water may contain: Total inorganic solid residue, 5 up to 50 parts; chlorine, 0·10 up to 1 part; phosphates, none; nitrites, none; free ammonia, 0·005 parts; albuminoid ammonia, 0·015 parts; oxygen consumed, 0·250 parts; poisonous minerals, none. It is probable that such an analysis as this would not call for very extensive comment, but in cases which show any notable increase in any, or all of my figures, and where some turbidity, or color or taste, or smell are also noted, the report of the analyst should be supplemented by some remarks upon:

1st, the behavior on ignition of the total solid residue; 2d, the quantity of the free and albuminoid ammonia and their proportionate relation to each other; 3d, the quantity of oxygen absorbed by a normal sample of the water from permanganate of potash and the time required for such absorption; 4th, the amount of nitrous acid or nitrites; 5th, the quantity of chlorine. These annotations should be further accompanied by explanatory footnotes stating in a general way, for the benefit of the uninitiated, that when residual solids turn very black on ignition and emit an odor resembling burnt hair, they point to the probable presence of animal matter. That when the quantity of free ammonia is very high, and especially when it is accompanied either by nitrous or phosphoric acid or by both, the indications are strongly in favor of recent sewage contamination. That, when in addition to much free ammonia, the albuminoid ammonia exceeds the figures 0·015 it is to be regarded as a measure of the potential putrescible animal matter which still exists in the water, and which will afford food for innumerable ferments of all species. That, when the quantity of "oxygen absorbed" under certain conditions (by Forschammer's test) is more than 0·250 it is to be regarded as entirely confirmatory of the other data, as is the amount of chlorine when, in waters far from the sea or from salt-bearing strata, it exceeds a maximum of 2 parts per 100,000.

Such information as this, modified to suit varying circumstances, would be of material assistance, even though it be based upon purely chemical tests. It might even become a generally applicable rule, and could be regarded as entirely conclusive if the figures obtained, and considered as a whole, were sufficiently abnormal to be startling. Such cases, however, seldom occur in actual practice, the numbers rarely exhibit any positive regularity, and usually only one or two of them are sufficiently high to excite suspicion. Here, therefore, the rule would no longer apply, and here commences the perplexity which calls for additional evidence through the medium of the microscope. To again put it more plainly, the vitality of the micro-organisms present in the water must be made the gauge of its potential organic impurity in all cases of serious doubt.

During the past five years there has been immense progress in biological science, but it is not yet sufficiently great to enable us to say with authority, off-hand, whether the organisms found in a water supply are disease producing or innocuous. It does enable us, however, to determine the extent of their vitality and their approximate numbers, and from this we may deduce the value of the water as a nutri-

ent medium for septic or other dangerous microbes that might gain access to it. The method most commonly used for the bacteriological examination of water consists in mixing a measured quantity of it (1 cub. cm..) in a test tube, with sterilized nutrient gelatin, and pouring the mixture upon a sterilized glass plate. After the gelatin has solidified the glass plate is placed in a damp chamber and kept at a uniform temperature of about 70° to 80° F. for five or six days. Colonies of microbes have by this time made their appearance, and may be counted unted the microscope with the aid of Wolffhugel's apparatus.

There can be no doubt of the excellence of this method, but in my own practice I have found it too tedious for commercial work, and have replaced it after many experiments, by one which is more simple and expeditious, and gives equally satisfactory information. As culture media, I use neutral, slightly acid, and slightly alkaline decoctions of malt extract, sterilized by boiling in Pasteur flasks. These flasks are always kept on hand ready for immediate use; and the sterilization having destroyed all forms of life, and the entrance of outside germs being absolutely prevented, the liquids preserve themselves indefinitely without losing their brilliancy or undergoing the slightest change. When a water is submitted for analysis, the first step is to shake it up well to insure perfect homogeneity. When this has been done 1 cub. cm. of it is introduced into each of the three flasks by means of a sterilized pipette. The flasks are then kept side by side at a uniform temperature of 80° F. for 48 hours, and the behavior of each flask is very carefully watched, and a note is made from time to time of the fermentative activity of each. The operation is always conducted on exactly the same lines, and yields data, which, when compared with that resulting from the chemical tests, is most useful and reliable.

For example, if a water which has yielded a marked excess of "albuminoid ammonia" in the chemical tests, quickly clouds up and develops very active fermentation in the flasks, we have immediate and undoubted proof of the existence of large numbers and various species of bacteria; and since their activity has been developed in such widely differing nutritive media it is safe to regard them as probably containing many forms of a highly objectionable kind, and to denounce the water as impure and unfit for drinking purposes.

If it were argued against this condemnation that nearly all surface waters are more or less contaminated with vegetable matter, and that this matter is always accompanied by infusoria and other lower forms of vegetable life which grow in nutrient solutions, and which are, nevertheless, assumed to be harmless, it may be answered that this is a question for the pathologist. The province of the chemist is to determine the condition of a water, and what I would emphasize is that the presence of very active bacteria in large quantities, growing in neutral, acid, and alkaline media under the circumstances named, would, to my mind, invariably indicate sewage or animal contamination, and would constitute a danger-signal of the highest significance. There are circumstances which, in certain cases, make it extremely difficult, if not impossible, to obtain complete scientific examinations of a water supply, but I do not consider that this need necessarily preclude the adoption of rational precautionary measures. We owe the adoption of such measures as we may command, not only to ourselves, but to those about us, and the duty may be discharged by means of a few simple tests which are very easily performed. These tests require no apparatus that is not found in every household; and I believe they are sufficient to determine whether any given water, of unknown quality, is safe for drinking purposes.

First.—Pour a glassful of the water into a decanter, cork it and shake it up violently for a minute or two. If it develops any bad smell after this operation, the water may be suspected of sewage or other animal contamination.

Second.—Add to a small glassful of the water two or three drops of dilute sulphuric acid and stir. Then pour in about two drops of a weak solution of permanganate of potassium or sufficient to color it a faint rose. Cover the glass with a saucer and leave it standing for ten minutes, when, if the rose color has entirely disappeared, the water is probably unwholesome and requires to be investigated.

Third.—Take a very clean, dry glass and put into it a few drops of a solution of nitrate of silver, and then pour in a couple of ounces of the water. If it becomes milky add to it a few drops of dilute nitric acid. If the milkiness does not now nearly all clear away the water will be proved to contain much chlorine, and unless it be taken from some source near the coast or near to salt springs, is probably contaminated with sewage.

Fourth.—Take two white eight-ounce bottles, with well-fitting stoppers, and wash them thoroughly clean. Nearly fill one of them with the natural water and the other with the water after boiling it for 30 minutes. Now put into each bottle a teaspoonful of pure white granulated sugar, shake them until the sugar dissolves, and then place them side by side at a temperature of about 80° F., and let them stand for three days. If the unboiled water rapidly clouds up and shows a marked fermentation, emitting an odor faintly recalling rancid butter, it probably contains phosphates, and may be suspected of contamination with sewage. If the boiled water shows any signs of decomposition, the suspicion of serious contamination will be confirmed.

Fifth.—Pour a small quantity of the water into a white saucer and carefully add to it one drop of sulphuret of ammonia. If a dark color is formed which immediately disappears on the addition of one or two drops of pure hydrochloric acid, iron salts are present. If the dark color does not disappear, the water contains other and probably poisonous metals, and should at once be rejected.

If any or all of the first four of these rough tests be doubtful or unfavorable in their results, they will render service of incalculable value, if only by pointing to the necessity for purifying the water before it can be drunk with safety.

How this purification should be performed, is a matter upon which there are numerous suggestions, and much difference of opinion; the best and most efficient manner of doing it in the household is by boiling it for 30 minutes. Dr. Miquel, of Paris, has dispelled all doubt upon this subject by publishing the following figures: Bacteria in each cubic centimeter of water, at 60° F., 460,800; 122° F. for 10 minutes, 600; 140° F. for 10 minutes, 90; 158° F. for 10 minutes, 89; 176° F. for 10 minutes, 63; 195° F. for 10 minutes, 27; 212° F. for 10 minutes, none. This evidence is too striking to require any comment, and I will merely say in conclusion that, if after it is boiled, the water be first cooled, and then passed through an ordinary charcoal or other approved filter, its flat and uninviting taste will be immediately removed.

RECENT DECISIONS AFFECTING THE MINING INDUSTRY.

Supreme Court of Minnesota.

LEASES OF MINING LANDS.

The statutes authorizing leases of mineral lands by the State are applicable only to lands "belonging to the State." It is not applicable to lands which have been merely selected by the State. Hence applications for leases filed with the State land commissioner prior to the approval of the selection are premature, and of no legal effect, even though recognized as valid by the commissioner.

But if, after the State acquires such lands, the applicant directs the attention of the commissioner to the premature application on file and the officer then recognizes it as a valid application, it becomes such. Priority of application gives no superior right as between several applicants; but an authorized preference by the land commissioner of one of two applicants in the granting of a lease, without affording opportunity for competitive bidding by them, does not justify an adjudication charging the applicant to whom the lease is granted as a trustee of the same for the disappointed applicant. Nor can such lease be set aside at the suit of the disappointed applicant, the State not being a party to the action. If the commissioner should be guilty of official misconduct by being a party in interest in the favored application, so as to avoid the application, a lease granted thereon might be adjudged to be held in trust for the other applicant. (Baker vs. Jamison, 55 N. W. Rep., 749.)

Opening of the Corinth Ship Canal.—The Corinth Ship Canal was opened by the King of Greece on August 6th, in the presence of all the members of the royal family, the cabinet ministers, the foreign diplomatic representatives, the principal military and civic officials, and an immense crowd of citizens. The king made a speech, in which he expressed his great pleasure on seeing the canal finished in his reign. The opening of the canal was signalized by the firing of military salutes and by the enthusiastic cheering of the multitude present. The first sod of the canal across the Isthmus of Corinth was turned by the King of Greece in April, 1882. The isthmus is about 3¾ miles in breadth. In the middle is a ridge 120 to 180 ft. high, which is approached on each side by a plain from the sea shore. There is a harbor at each end of the canal. The canal will save vessels passing from the Adriatic to Constantinople or ports on the eastern shore of Greece about 200 miles of navigation.

PATENTS PUBLISHED IN GREAT BRITAIN.

The following is a list of patents published by the British Patent Office on subjects connected with mining and metallurgy:

WEEK ENDING JULY 29TH, 1893.

6,567 of 1892. Method of Using Heat of the Sulphur in Ores for Roasting the Ores. H. R. Lewis, London, and C. Gelsharp, Newcastle on-Tyne.
12,641 of 1892. Improvements in the Cyanide Extraction Process. J. C. Montgomerie, Stair, Scotland.
13,137 of 1892. A New Silicon Steel for Springs. L. J. D. Holtzer, Unieux, France.
14,570 of 1892. Stoppers for Casting Ladles. J. Stranaghan, Salford.
15,489 of 1892. New Form of Pyrometer. Negretti & Zambra, London.
16,610 of 1892. Miners' Safety Lamps. W. H. Johnson, Manchester.
17,918 of 1892. Improvements in Electro-deposition of Metals. C. A. Netto, J. Pfleger and L. Haussmann, Frankfort, Germany.
216 of 1893. Hauling Ropes for Mines. T. Archer, Gateshead.
511 of 1893. Paint and Glaze for Aluminum Articles. G. Wegner and P. Gühre, Berlin.
4,083 of 1893. Blast Pipes for Smiths' Fires. W. Clarke, Sheffield.
7,387 of 1893. Electric Welding Apparatus. W. P. Thompson, Liverpool (C. L. Coffin, Detroit).
10,953 of 1893. Manufacture of Chlorates of Potassium and Sodium. A. Nieske, Dresden, Germany.
11,105. 11,106, 11,107, 11,108 of 1893. Electrolysis of Brine. T. Craney, Bay City, Mich.

PATENTS GRANTED BY THE UNITED STATES PATENT OFFICE.

The following is a list of the patents relating to mining, metallurgy and kindred subjects issued by the United States Patent Office:

TUESDAY, JULY 11TH, 1893.

501,104. Triphenylmethane Dye. Friederich Runkel, Elberfeld, Germany, Assignor to the Farbenfabriken, vormals Fr. Bayer & Co., same place.
501,106. Grinding Mill. Friederich Schmidt, New York, N. Y.
501,107. Regenerative Gas Furnace and Producer. Frederick Siemens, Dresden, Germany.
501,121. Art of Manufacturing Chlorine or Caustic Alkali by Electrolysis. Charles N Waite, Newton, Mass.
501,122. Dredging Machine. John E. Walsh, New York, N. Y., Assignor to Mary A. Walsh, same place.
501,123. Compound Water Wheel. Lewis Wertz, Oregon, Ill.
501,138, 501,139, 501,140. Apparatus for the Manufacture of Steel or Iron. John Heaton and George H. Holden, Manchester, England.
501,188. Flooring for Blast Furnaces. Malvern W. Iles, Denver, Colo.
501,189. Process of Manufacturing Oxide of Zinc. George T. Lewis, Philadelphia, Pa.
501,209. Mining Machine. Adam Keil, McKeesport, and Anton R. Westerdahl, Pittsburg, Assignors to Samuel S. Brown, Pittsburg, Pa.
501,236. Furnace. William Swindell, Allegheny, Pa.
501,250. Apparatus for Manufacturing Gas. Alexander C. Humphreys, Philadelphia, Pa., Assignor, by mesne assignments, to the United Gas Improvement Company, same place.
501,331. Apparatus for Making Castings. William W. Doolittle, Chicago, Ill. Assignor to the Crane Company, same place.
501,377. Manufacture of White Lead. Arthur J. Smith, London, England.
501,393. Apparatus for Hardening Steel. Hugo Wilisch, Homberg-on-the-Rhine, Germany.
501,426. Hydraulic Press, Etc. August Kampf, Magdeburg, Germany, Assignor to the Grusonwerk, same place.
501,433 Crushing or Grinding Mill. William A. Merralls, San Francisco, Cal.

PERSONALS.

Dr. H. Froehling, of Richmond, Va., is now in Chicago. He is one of the judges of the mining exhibit in the World's Fair.

Mr. O. H. Hahn has returned from his trip to China. His present address is at the Safe Deposit Building, San Francisco.

Mr. Francisco T. San Roman, of Santiago, Chile, is spending a few weeks in Chicago looking at the Fair. He can be found at the Chilean exhibit, in the Mines Building, at the Fair.

Mr. Loudon W. Richards, recently with the Maryland Steel Company, has been appointed superintendent of the open-hearth department of the Pottsville Iron and Steel Company.

It is understood that Professor Selwyn, the director of the Geological Survey of Canada, at Ottawa, has accepted the appointment as judge of the mining and mineral exhibits at the World's Fair.

Mr. George Barker, formerly of the Oaks colliery, Barnsley, England, and for some years general manager to the Bedworth Coal and Iron Company, has been appointed general manager to the Oceana Coal Company, Transvaal, South Africa.

Mr. George C. Thomas has resigned his position as a director of the Lehigh Valley Railroad Company, on account of the additional duties thrown upon him by the death of Mr. A. J. Drexel. Mr. Thomas has represented the Drexel interest upon the board.

Messrs. H. Ruhr, R. B. Beahm, C. Betrel, G. Jung and H. Uhlmhare, members of a German engineering society, in Essen, Germany, representatives of Krupp's great iron works, visited the Bethlehem Iron Company's plant, at South Bethlehem, Pa., last week.

The firm of Bowes Scott & Western, Westminster, England, has been dissolved. After the withdrawal of Mr. Henry Bowes Scott, Mr. Charles Robert Western will continue the business under the old name. This firm is well known in England as makers of all kinds of mining machinery.

OBITUARY.

Howard W. Middleton, a well known iron merchant, of Philadelphia, died on the 8th inst., at Germantown, Pa., aged 47 years.

We regret to announce the death of Samuel Edward Phillips, of London, partner in the firm of Johnson & Phillips, who are large makers of electrical supplies. Mr. Phillips was the inventor of oil insulation, which has been largely adopted in high-tension, long-distance transmission.

Charles G. Otis, who died in Brooklyn, N. Y., August 7th, aged 62 years, was born in Troy, N. Y. Over 30 years ago he began, with his brothers, the manufacture of hoisting machinery in a small way and gradually built up the extensive business which is now carried on by the corporation of Otis Brothers & Co. He made many improvements in the manufacture of elevators, and some of his inventions are in general use.

Edward S. Moffat, according to dispatches received in Scranton, killed himself in London, August 4th. He had been for some time past president of the Lackawanna Iron and Steel Company. He went abroad about six weeks ago for the benefit of his health. Mr. Moffat had been suffering for some time from insomnia and nervousness induced by overwork, and his physicians recommended a sea voyage. He was accompanied by his wife and expected to return about September 15th. He was about 50 years old and was a graduate of Princeton College and the Columbia School of Mines. He was an accomplished metallurgist. He was a man of somewhat sensitive and nervous temperament.

Prof. B. K. Emerson, of Amherst College, who was reported to be fatally injured in the railroad accident, near Fremont, O., was considered one of the strongest men on the faculty of that college. He had charge of the department of geology and mineralogy, which have been a feature of the course at the college since the days of President Hitchcock. He was born at Nashua, N. H., in 1843. He was graduated from Amherst College in 1865, and studied abroad for five years, receiving the degree of Ph. D., at Gottingen, in 1870. Since that time he had been connected with Amherst College, having been appointed professor in 1872. He was a member of various scientific societies and was connected with the recent survey of Massachusetts by the United States.

SOCIETIES AND TECHNICAL SCHOOLS.

English Conference of Mining Accidents.—The Earl of Wharncliffe presided at the Mansion House, London, recently, over the fourteenth annual conference of authorities of miners' permanent benefit societies and others interested in movements for relieving distress caused by accidents in mines. There was a large number of delegates present from the mining districts of England and Wales. The report of the central association for dealing with distress caused by mining accidents showed that the number of widows in receipt of annuities during the past year was 2,612, the number of children 4,008, and the number of disablement cases 38,329. There had been a considerable increase in the members of the Association and in funds. The report having been adopted, Mr. George L. Campbell, secretary of the Association, read a paper on the "Mansion House and Mining Disasters," in the course of which he expressed the opinion that, though the Mansion House was the great vehicle of national sympathy, it might be overworked. As permanent relief societies, however, extended it might be hoped that the appeals to the charitable would diminish. A vote of thanks to Mr. Campbell was unanimously passed. Lord Crawford was re-elected president, and after formal business had been transacted the conference terminated.

British Institution of Mechanical Engineers.—The summer meeting was held at Middlesbrough, Yorkshire, August 2d, 3d and 4th. The papers read bore mostly on the great iron and steel industries of the Middlesbrough district, and the information given in them was supplemented by visits to many of the works and mines in the neighborhood. That well known metallurgist, Sir Lowthian Bell, acted as chief welcomer to the guests; with him were his son Mr. Lowthian Bell, who is at present mayor of Middlesbrough, and his brother, Mr. Hugh Bell, an alderman of the town. The paper that raised the most discussion was that of Mr. Jeremiah Head, also a distinguished Middlesbrough metallurgist, on the "Development of the Middlesbrough Iron and Steel Industries" during the 22 years' interval since the Institution met there before. Mr. Head, after giving a general history and statistics of the advance of Middlesbrough trade, spoke of mild steel as the constructural metal of the future and laid stress on the increase in the use of the basic processes. This called forth considerable discussion, Mr. Windsor Richards defending Yorkshire iron, and Mr. W. H. White giving his reasons for not recommending basic steel in the building of battleships. Other papers read were: "On the Middlesbrough Salt Industry," by Richard Grigg; "On Some Engineering Improvements in the River Tees," by George J. Clarke; "The Electric Rock Drilling Machinery at the Carlin-How Ironstone Mines in Cleveland," by A. L. Steavenson; "The Working of Steam Pumps on the Russian Southwestern Railways," by Alexander Borodin; "On the Artificial Lighting of Workshops," by Benjamin A. Dobson.

INDUSTRIAL NOTES.

The Rome Merchant Iron Mill, of Rome, N. Y., resumed operations on the 7th inst., after a temporary suspension.

The factory of the Pacific Nail Works, at Oakland, Cal., was burned on the 6th inst. Estimated loss, $250,000; insurance, $175,000.

The Buckeye Iron and Brass Works, Dayton, O., have an exhibit of their brass goods in the Machinery Building, at Chicago, to which their friends are invited.

Fire gutted the foundry and some of the adjoining buildings of the Eureka Cast Steel Company, Lamokin, Pa., August 8th. Loss, $27,000, covered by insurance.

The Lapweld mill and all departments connected with the National Tube Works Company, at McKeesport, Pa., closed down indefinitely on the 5th inst. Several thousand employees are idle.

Dr. C. Otto & Co. issue a small pamphlet in connection with their exhibit in Chicago, describing the Otto-Hoffmann coke oven and giving instances of its use, with some account of the advantages claimed for it.

The American Sheet Mill, one of the largest industries of Phillipsburg, N. J., after being closed down nearly two months, resumed operations on the 7th inst., with enought orders to keep the mill going steadily with its day force.

The Cambria Iron Works, at Johnstown, Pa., shut down all of its works on the 4th inst., excepting No. 1 rolling mill, one-half of No. 4 mill and the open-hearth mill, which supplies No. 4 with stock. Over 3,000 men and boys are out of work.

The Huron Iron Furnace and the Globe Iron Company, near Jackson, O., ceased operations on the 4th inst. It is reported that only three of the 22 iron furnaces in Hancock County, where the Huron and Globe works are situated, now remain in operation.

The La Belle Steel Works, one of the largest steel works in Allegheny, Pa., closed down on the 5th inst., in all but three departments. These will be kept in operation until present orders are finished. All employees, 600 in number, will be paid in full on August 12th.

It is announced that the steel plant of the Colorado Fuel and Iron Company, at Pueblo, Colo., will resume work August 14th. It has been shut down three months for repairs. The company, it is stated, has orders enough ahead to keep the mills at work for some time.

The latest catalogue of John Maslin & Son, Jersey City, N. J., illustrates and describes very completely the manufactures of the firm, including their automatic steam vacuum pump and a variety of engines, boilers and hoisting machinery, with shafting, pulleys, etc. This is the ninth annual catalogue of the firm.

The Reading company has sold the old rolling mill property, at West Hamburg, Pa., to Jusen & Co., of Columbia, Pa., who will dismantle the property and take away the machinery. In its busiest times the mill employed 300 hands. In recent years it proved unprofitable. The Pottsville Iron and Steel Company was the last lessee.

The Allgemeine Elektricitats Gesellschaft, Berlin, Germany, sends out a handsomely illustrated pamphlet describing the exhibits made at the World's Fair, and also the company's works and their products, including dynamos and other electrical apparatus, especially that for the transmission and distribution of power.

Work was partly resumed at Jones & Laughlin's American Iron Works, at Pittsburg, Pa., August 7th. Seven mills in the finishing departments, the billet mill, and the steel plant are in operation. About 500 men are at work. The puddling department was closed indefinitely on the 5th inst. About 2,500 employees of the works are idle.

The Berlin Iron Bridge Company, East Berlin, Conn., has received the contract for the new power station for the Atlantic Improvement Company, Astoria, N. Y. There will be two buildings, a boiler-house, 62 ft. wide and 85 ft. long, with a dynamo-room 70 ft. wide and 130 ft. long. The dynamo-room is controlled by a traveling crane to be furnished by the same parties.

The two large anthracite blast furnaces of the Philadelphia & Reading Coal and Iron Company, at Reading, Pa., are still undergoing repairs, and it is expected will be lighted early in the fall. Last week No. 5 mill resumed with 250 hands, and within a few days what is known as No. 2 Lapweld Furnace, will be lighted. It is said that the entire plant will soon be running full handed.

The Linden Steel Company, one of the largest concerns in Pittsburg, is financially embarrassed and has asked for an extension. The company has large government contracts, and is engaged in the manufacture of armor plate. The embarrassment was caused by inability to realize on securities and it is believed will only be temporary. A meeting of creditors has been called, at which an extension will probably be granted.

The East Chicago Iron and Steel Company has assigned, the Chicago Title and Trust being made assignee. The company's works are at East Chicago, Ill. The plant cost originally $250,000. It has been estabished two years, and has done a growing business in smelting and the manufacture of iron and steel rails and all kinds of heavy structural materials. When organized the company's capital stock was $250,000. Included in the value of the plant is the stock on hand, worth $30,000. Outstanding book accounts are placed at $25,000. The company says that its liabilities are between $70,000 and $90,000, of which $40,000 consists of indorsements made for the firm of Parkhurst & Wilkins.

MACHINERY AND SUPPLIES WANTED.

If any one wanting machinery or supplies of any kind will notify the "Engineering and Mining Journal" of what he needs he will be put in communication with the best manufacturers of the same.

We also offer our services to foreign correspondents who desire to purchase American goods, and shall be pleased to furnish them information concerning goods of any kind, and forward them catalogues and discounts of manufacturers in each line.

All these services are rendered gratuitously in the interest of our subscribers and advertisers; the proprietors of the "Engineering and Mining Journal" are not brokers or exporters, nor have they any pecuniary interest in buying or selling goods of any kind.

GENERAL MINING NEWS.

Oil.

Stowell's drill report for July shows in the New York, Pennsylvania and West Virginia oilfield 193 new wells, with a production of 7,339 barrels per day, completed; 33 dry holes are reported and 357 new wells under the drill. In the Buckeye district, in Ohio, 152 new wells, with a production of 9,588 barrels, are reported; 18 dry holes and 155 wells in progress. In the Southeastern Ohio field 26 new wells, yielding 323 barrels per day, were finished; there were 7 dry holes and 25 wells in progress. The Indiana field shows 47 new wells with a production of 3,880 barrels; 11 dry holes and 61 wells under the drill. The Buckeye district shows the greatest increase in production, but the Indiana district the highest average to the well.

ARIZONA.

Maricopa County.

(From our Special Correspondent.)

Superstition gold mine No. 1, owned by Truman, Jones, Bowen and others, has been bonded at $35,000, by T. E. Farish. He paid $5,000 August 1st and will pay the balance in six months if the claim

pans out as the present showing would indicate. Farish bonded the property for Denver men.

Harcuran.—A 10-stamp mill is now being put upon this property. There is plenty of ore on the dump to start the mill in good shape and enough can be taken out of one winze to keep the mill going for some time. The development of the properties are not far enough advanced to work more than 35 or 40 men; but as soon as the shaft is down far enough there can be some advantageous cross-cutting done and the force can then be largely increased as it will be, and 10 more stamps added to the mill.

Mohave County.

(From our Special Correspondent.)

The loss of the Big Sandy mill, at Signal, by fire has caused great inconvenience in the district. The actual loss was $60,000, with $10,000 insurance. Steps will be taken at once to rebuild.

Yuma County.

(From our Special Correspondent.)

The Bonanza Mines, Harqua Hala.—This week there was paid on the order of C. H. Lindley, representing the English purchasers, the last payment of $475.000 on the purchase price, which was $1,250,000. Of the total amount paid for this property, $500,000 goes to the widow of G. W. Bowers; a like amount to the surviving partner in the mine, A. C. Hubbard, and the promoters who engineered the sale appropriated the remainder.

CALIFORNIA.

The Pacific Mining Agency and Trust Company is a corporation organized under the laws of California, with office in San Francisco. The object is to sell mines, mining claims, ditch properties and water rights on commission, and to act as agent and broker for the sale and purchase of such properties. It is intended to conduct the purchase and sale of such properties on the same basis as a real estate transaction. The company will also have examinations of properties made by competent engineers and mining experts. The list of directors contains several well known names.

Amador County.

Mayflower Gold Mine.—The last drift from the main shaft has cross-cut 70 ft. of ledge, passing through pay-streaks of 14 ft., 6 ft., 2 ft. and 18 in., making 23 ft., 6 in. in all. The ore runs from $5.50 to $8.27, while the sulphurets will go to $60. Orders have been given to start up the mill at once.

Mono County.

Bulwer Consolidated Mining Company.—At this company's property, some fair-grade ore is being extracted, just above the 200-ft. level.

Nevada County.

(From our Special Correspondent.)

Baltic Mining Company, Grass Valley.—The five-stamp mill is just about completed and the ore on the dump—in all about 80 tons—will be run through first. In the stope recently opened, 170 ft. in from the mouth of the tunnel and 160 ft. below the surface, a ledge of quartz shows from 6 to 18 in. wide carrying a large quantity of free gold.

(From our Special Correspondent.)

Live Oak Mining Company, Wolf.—The work being done in the mine is giving promise of resulting excellently well for all concerned. The ore body is broadening out and runs $32 to the ton in milling tests. An eight-stamp mill has been erected, and will be soon started up.

Placer County.

Mayflower Gravel Mining Company.—At the San Francisco office of this company a gold shipment valued at $9,000, has been received, being the product of a two-weeks' run.

San Bernardino County.

(From our Special Correspondent.)

Keystone.—This property is in the Good Spring district. A force of 20 men were put to work last week and a 10-stamp mill has been contracted for to be in operation within 90 days. Superintendent Godby is pushing things. The mine was recently purchased from Mr. Taylor, for $70,000.

Montgomery Mine.—Superintendent Bartlett, of this mine, was at Vanderbilt after supplies this week. The mill was shut down temporarily for some repairs. The mine at a depth of 190 ft. showed better ore than ever.

New District.—Two miles from Crossman Springs a new camp has been discovered, which shows carbonate ores carrying gold and silver in good quantities. A. M. Ray, Joe Anderson and Wm. McLaughlin located a ledge which assays $80 with an 18-in. pay streak. Cavanaugh, Boddiker and McHale have three claims, all of which show silver chlorides assaying up into the hundreds. Quite an excitement has been caused by the discovery.

Vanderbilt.—This is at present the terminus of the Nevada Southern Railroad, which will eventually be extended through Nevada into Utah. It is an outfitting point for prospectors and affords one of the largest and most favorable scopes of country in the United States in which to find mines of varied characters. Just now all attention is turned to gold, and this metal exists in many localities.

St. George.—This mine was recently visited by one of its owners, J. L. Flood. At the 370-ft. level the inflow of water is so great that work will not be resumed until after the pumps are put in operation.

Siskiyou County.

(From our Special Correspondent.)

The recent find near Sisson continues to attract attention, and rock submitted for assay has been reported upon as follows: Silver, 42·53 oz., at $75, $31.89 per ton; gold, 30·38 oz., $628 per ton. Total, $659.90. An open cut has been run for 20 ft. along the face of the ledge on the south side of the creek. The ledge proved to be 8 in. wide on the top, gradually widening to 74 in. at the bottom of the cut. Free gold was found in most of the ore, the latter being also rich in sulphurets. The ore is of white quartz with considerable iron stain, the vein being confined between a hanging wall of granite and a footwall of slate. The ledge runs northeast and southwest, can be traced to the northeast for over 3,000 ft. and to the southwest for a few feet only. The owners of the property are: W. W. Dale, W. Dale, Jr., P. Kennan, J. S. Cleland, J. Keenan and S. andJ. Dale, who have also located different extensions on the main ledge and on a spur.

Sonoma County.

(From our Special Correspondent.)

The little town of Healdsburg is much agitated at a gold discovery made near the depot, the precious metal showing 5 and 6 cents to the pan. The gravel deposits on which the town is built are all more or less rich in gold. In the Dry Creek Valley, five miles from the town, successful mining used to be carried on, and, indeed, in all the gulches of the West Coast Range colors of gold can always be obtained.

COLORADO.

Advices from Denver state that the smelters there are still buying ore, and they will continue to run, though at a reduced capacity. The Durango smelters have plenty of ore carrying some copper and some gold, coming from Silverton, Ophir, Rico and Telluride.

(From an Occasional Correspondent.)

The smelters at Pueblo are working up their stocks on hand as fast as they can, and nearly all of them have sold their silver ahead on 30 and 60 days' deliveries to London. Of course, at a loss. There is no ore to be bought except a little silicious gold, or gold and silver ore, not enough to work up stocks on hand. All the other smelters in Colorado are running less than their capacity and dropping one furnace after another as a reduced stock. It is difficult to see where ores for smelting are to come from even at present prices of silver. Nearly all the mines, with the exception of the gold mines, at Cripple Creek, and the Smuggler Union, at Telluride, are shut down, and the tonnage thus produced is not over 100 or 110 tons daily. There is a product of 90 to 100 tons per day of lead ores, low in silver, but this tonnage cannot be kept up unless lead goes up. After August there will be very little silver and less lead coming into the market from this region unless conditions change very materially.

Del Norte County.

The Bald Hill diggings, recently discovered, about six miles from Crescent City, have proved both extensive and rich. The miners now there are preparing to work on a grand scale, in sinking shafts and building flumes. A town has been laid out, and buildings are beginning to be built. It has been named Vallardsville.

El Paso County.

Pharmacist Mining Company.—The shaft on the Pharmacist is being rapidly sunk and is now down about 265 ft., says the Cripple Creek "Crusher." The vein is 4 ft. wide in the bottom, with perfect walls, and 2 ft. of it yields over $300 per ton in gold. A drift is being run a short distance from near the bottom, 76 ft. below the second level. The ore thus blocked out is considered as good as any heretofore taken out of the mine. The cross vein shows strong in the lower workings and is yielding good ore. A cross-cut is being also run to tap the Zenobia vein, from which so much good ore has been taken, near where it enters the Pharmacist ground. Manager Jones expresses the opinian that it will be reached in from 15 to 20 days. Judging from the direction of the vein as exposed in the Zenobia workings, it is thought the Pharmacist will have about 900 ft. of this vein within its boundaries. The management expects that when tapped, this vein will increase the output of the mine.

Gilpin County.

Topeka Mining Company.—This company, in Russell Gulch, are issuing bonds to raise sufficient funds to thoroughly develop their holdings on the Topeka vein. This vein has already produced a large amount of ore.

Lake County.

(From our Special Correspondent.)

At this writing it seems most probable that the Kansas City Smelting and Refining Company's plant in this camp, known as the Arkansas Valley smelter, will remain shut down tightly for the present. On August 2d, the company put into effect a 10% reduction on all wages. A number of the men went to work, but they were driven away by a mob and were not allowed to return to work at the reduced scale. As it does not seem likely that an amicable settlement will be arranged, the management has prepared to blow out at once. This smelter, which is one of the largest in the country, has been running eight blast furnaces, but owing to a scarcity of lead and the general depressed condition of affairs, has only been running three of late. These, together with the roasting department, gave employment to 230 men, who are now idle.

Cyrus Allen and Henry Thompson, of this city, this week opened up a large and rich vein of gold ore in Boswell gulch, some 12 miles from here. Assays from this find gave returns of from 4 to 13½ oz. gold per ton. The ore is a soft quartz and promises improvement as development work progresses. Quite a number of prospectors are now in that section and will thoroughly prospect for more of this same mineral.

At the Bimetallic smelter the improvements have all been completed, and that plant is now ready to blow in with double its former capacity. It seems likely, however, that nothing will be done until the silver question is settled, although negotiations are now pending regarding a sliding scale of wages which may be accepted by the men and the plant be started up.

La Plata County.

Columbus.—This mine, situated 12 miles north of here, on La Plata Mountain, owned by L. C. Williams, Charles Benson and George P. Datson, has been sold for $150,000, $27,000 of which was paid over when the transfer was made. The property is well developed and assays well in gold. The purchaser is said to be an English syndicate, represented by A. Lansom.

San Miguel County.

Shipments of ore and concentrates from Telluride for the week ending August 4th aggregated 374 tons, making a total since January 1st of 12,074 tons.

FLORIDA.

Alachua County.

Tutton Mine.—Work at this phosphate mine is being extended and the machinery is now all in operation. A large storage building has been put up.

Marion County.

Burke Mine.—The force at work on this phosphate mine, near Ocala, has recently been doubled and shipments are being increased to fill orders.

Polk County.

Belle Phosphate Company.—This company's buildings and machinery near Fort Lee are now nearly completed and active work on the mine will soon begin.

Land Pebble Phosphate Company.—The South Florida Foundry and Machine Works, of Orlando, has taken heavy contracts for phosphate machinery for this company, at Pebble.

IDAHO.

Alturas County.

Tyrannis.—The "Wood River Times" says that James McCarter and Joseph Reedy have made a strike in the Tyrannis. They have had ore for years, but it was so low-grade that it scarcely paid expenses. They have run a lower tunnel the past winter, however, and about a week ago, after finding sundry bunches and small kidneys of rich ore, they cut into a vein of ruby silver ore that is exceedingly promising.

Boise County.

King Gold Mine.—This mine has not been worked for some time, but it has recently been unwatered and a force of miners put at work. The ore, according to the Boise "Statesman," is free-milling and appears to increase in value in depth.

Mountain Queen.—The 20-stamp mill at this mine is crushing on an average of 60 tons per day. The ore yields from $4 to $5 per ton in free gold and the returns are said to be satisfactory.

Owyhee County.

De Lamar Mining Company.—The report for June shows 2,508 tons crushed, the average assay value being $33.90. The product was 1,719 oz. gold and 32,801 oz. silver. Receipts were, from bullion, $58,001; sales of ore, $9,010; miscellaneous, $2,890; total, $69,901. Expenses were $35,608, leaving profit $34,293. Manager J. W. Plummer's report says of the mining work: 77-ft. vein, fifth level, east. The present face does not show anything of value, although we find at times small pockets of rich shipping ore. 77 ft. vein, sixth level, east. The level is all in ore of varying degrees of value; at the present time it assays $5 gold and $17 silver. 77 ft. vein seventh level, east. This level has been advanced during the month 25 ft. It is being driven on the contact in search of shipping ore. A little silver is found occasionally, and the present face looks favorable. Wahl Tunnel. The character of the rock passed through during the month is without change, and is still hard for breaking. We have suspended work on the main tunnel for the time being, and have commenced to cross-cut easterly to intersect the iron dyke, which we have not seen for several hundred ft. No. 9 level cross-cut. The face of this level

is mixed with quartz, and is wetter than usual. The rock is rather hard and firm. No. 5 vein, ninth level, east. The vein in this level for the month past will average 3 ft. wide, assaying $25 gold and $5 silver, equal to $30 per ton. Its present face shows a width of 18 in. of good ore; this narrowing down is due to its approaching the iron dyke. From the face of this drift we have commenced to crosscut into the footwall, for the purpose of intersecting the 77-ft. vein on this level. We have also extended a raise on this vein and connected it with the eighth level, the full distance of which is 92 ft. Average width of vein in this raise is 4 ft., and its average value is $25 gold and $15 silver, equal to $40 per ton. No. 6 vein, ninth level, west. This level has been extended 23 ft.: the vein will average 3·50 ft., assaying $28 gold and $10 silver, equal to $38 per ton. No. 6 vein, ninth level, east. This level is approaching the dyke, and is at present suspended. No. 7 vein, ninth level. The average width of vein is 3½ ft., assaying $25 gold and $15 silver, equal to $40 per ton.

ILLINOIS.

Henry County.

The Kewanee Coal Company.—This company has increased its capital stock to $100,000 in order to provide money for additional developments.

Peoria County.

Edwards Mine.—This mine has recently been opened at Edwards Station, near Peoria, and is doing very well.

INDIANA.

Natural Gas Belt League.—The permanent organization of the Natural Gas Belt League of Indiana was effected at Anderson, Ind., August 7th. The officers are: President, Maj. J. H. Terhune; vice-president, G. W. Landon, Kokomo; secretary, J. A. Williams, Muncie; treasurer, J. Overshine, Elwood. The league includes Madison, Hamilton, Tipton, Grant, Howard, Jay, Delaware and Blackford counties. The object of the league is to pool the interests of the gas cities and prevent foreign companies from securing gas leases in the Indiana belt.

IOWA.

Boone County.

Lower Vein Coal Company.—This company has been organized by D. B. Barney, H. Brown and others, to mine coal near Boone.

Keokuk County.

Crescent Coal Company.—This company is doing a good deal of prospecting work and is preparing to open a new mine on its property, near What Cheer.

Marion County.

Carbon Coal Company.—This company has struck a 5-ft. vein of coal in the shaft which it has been sinking at Knoxville.

Wapello County.

Phillips Coal Company.—This company is sinking two new shafts to develop its property, near Ottumwa.

KANSAS.

Coal.

The Co-operative Mining Company.—This company has been organized at Wichita, for the purpose of mining coal, by O. McKinney, J. Turner and others.

A press dispatch from Topeka says that all efforts to bring the southwestern Kansas miners' strike to an end have proved fruitless, for the reason that the operators do not propose to employ any of the men who have participated in the present trouble. The operators are putting new men at work every day, and say they will not feel the effects of the strike by the end of the week.

Cherokee County.

Grand River Mining and Smelting Company.—This company has been organized, with an office in Columbus, and $150,000 capital stock to mine lead and zinc and build smelting works. The directors are: Thorne, E. Corpany, D. C. Finn, A. J. Mudeater, Chas. French, A. S. Dennison and W. H. Barr.

MARYLAND.

Allegheny County.

Frostburg Mining Company.—This company has been organized to develop the coal on the Wither's tract of 1,500 acres, near Frostburg.

MASSACHUSETTS.

Berkshire County.

Stockbridge Iron Company.—The Nathaniel Leet mine, at West Stockbridge, has been closed and the pumps taken out. The mine has been operated by the Richmond Iron Works, under a lease, but the lease has expired and has not been renewed. The mine is a very old one.

MICHIGAN.

Copper.

Calumet & Hecla Mining Company.—On the 5th inst., the stockholders of this company received the annual pamphlet report, for the first time in the company's history. It contains a clear and condensed report of two pages by President Agassiz, similar to that made last year, statement of assets and liabilities, a 13 page sketch of the property of the company, and several surface maps of the company's propery, but no map of underground workings. Perhaps the most important statement in the pamphlet is as follows: "We are approaching the time when the equipment of the company will be practically completed, and when we shall only have to look forward to comparatively small expenditures for new equipment." The company smelted in the year ending April 30, 30,214 tons of refined copper, compared with 28,248 tons the previous year. Price of copper has varied from 12½ cents to 10½ cents, and is now 10½ cents. Four dividends of $5 each were paid during the year. Sinking Red Jacket vertical shaft has been resumed, and cross-cuts to it have been made from the 39th to the 42d levels. Two cross-cuts have been driven to the Osceola amygdaloid vein which "was found quite well filled with copper." Another amygdaloid belt, in which a good deal of copper was found, was also crossed. A third cross-cut to the Osceola vein will be made, and the company proposes to carry on a good deal of exploration from them. The financial statement shows surplus assets of $3,457,321, against $2,635,942 last year, though copper is taken at 9 cents instead of 10 cents, as last year. Liabilities, including mining contracts, are but $587,956, but $600,000 more will be required to complete the vertical shaft.

Huron Mining Company.—This property shut down on the 7th inst., throwing 130 men out of work.

Iron—Menominee Range.

The Chicago & Northwestern Railway Company has declined the request of the mining companies on this range for lower freight rates.

Chapin Mining Company.—A press dispatch from Milwaukee, Wis., dated August 8th, says: President Ferdinand Schleisinger, of the Chapin Mining Company, and the head of the Schleisinger mining syndicate, will tender his resignation within three days, to take effect at once. The company has given its creditors absolute control of its property, which included a lease of the famous Chapin mine, with the understanding that after all the indebtedness is cleared away the property shall return to the stockholders of the company. It was only after this agreement was made by all parties interested that Mr. Schleisinger, who is practically the Chapin Mining Company, consented to be retired. The plan of the creditors to realize on their claims against the company is well arranged on a business basis which promises to protect the company against utter demoralization and enable all the banks in Milwaukee holding paper of the Chapin Mining Company to realize on the basis of 100 cents on the dollar with interest. It originated in the mind of Washington Becker, receiver for the Mitchell Bank, and has been accepted by the creditors in every detail as well as by Mr. Schleisinger. Receiver Becker will manage the property.

MINNESOTA.

Duluth.

(From our Special Correspondent.)

The ore shipments to date, from the Vermillion and Mesaba ranges are as follows: Minnesota, 215,880 tons; Chandler, 256,086; Zenith, 2,000; all Vermillion; total Mesaba range, 100,000 tons. The new ore dock of the Duluth, Missabe & Northern road, at Thirty-third avenue west, was opened this week and has so far handled six cargoes, about 10,000 tons. About 150 cars are coming to the dock daily. It is expected that a 2,000-ton cargo can be loaded in 30 minutes after things get to working smoothly.

Excellent indications of gold have been found north of the Vermillion range, south of the international boundary. Several exploring parties are investigating. Gold has occasionally been reported from this section for years.

Iron—Vermillion Range.

Minnesota Iron Company.—Only 500 men are in the employ of this company. Shafts 7, 8 and 9 are still being worked, but the pumps are taken out from the lower levels. Many of the unemployed have gone to their European homes.

Iron—Gunflint Lake District.

Because of the failure of the State Bank of Minneapolis, which was a large advancer to the Gunflint Lake Iron Company, work at the property has stopped. A party from Minneapolis, representing the creditor bank and accompanied by H. V. Winchell, Assistant State Geologist, has gone to look over the property. There seems to be no question but that the reported nickel finds hereabout are of value.

Mesaba Range.

Biwabik Ore Company.—This company closed down all operations for the present, throwing out 250 men. It had been shipping for two or three weeks as high as 1,000 tons a day. It is hoped to resume later in the season.

Hale.—This mine, operated by the Standard Ore Company, closed August 1st, throwing out 35 to 40 men. It had been but one cargo shipment which was understood to be very satisfactory, but a lack of ready cash caused the shut-down.

Ohio.—One hundred men employed stripping here have been laid off and the mine will probably ship very little ore this year.

Lackawanna Iron Company.—This company, in Township 57, Range 22, has found mixed ore within 5 ft. of the surface, with every indication of good ore at a depth of 8 ft. Large deposits of good ore have been testpitted by this company on an 80-acre tract just ¼ mile west of the new find. Ore has also been found just east by E. J. Longyear, of Marquette. The Mesaba Chief mine lies joining the Lackawanna on the southwest. The dip of the ore body hereabouts, where larger developments will show a great deal of ore, is toward the south at a grade about 200 ft. to the mile steeper than the surface, which also dips to the south and east.

Moose.—This company, in 8-58-17, has sunk through its manganese find, 20 ft., and has drifted 38 ft. and 22 ft. in opposite directions from the shaft. Both drifts are yet in manganese ore. A late assay is 57% manganese, 2% iron, 0·90% silicon. Some 500 tons of manganese ore from 30 to 55% have been raised. Work on the property is almost entirely suspended.

MISSOURI.

Coal.

The strike of all Missouri miners ordered for the 7th inst., by a delegate convention of miners held at Kansas City last week, has not taken place. At a few of the lesser mines some of the men went out, but at the great mining centers the workmen refused to strike. It was a "sympathy" strike, and was ordered to bolster up the losing cause of the Kansas strike and not because the Missouri men had any grievance of their own.

Jasper County.

A press dispatch from Joplin says: Operators of lead and zinc mines in this district met in Joplin yesterday and organized for protection against the smelting company. The smelters have forced prices down until they are below cost of production. The operators will close down their mines to force a better market.

MONTANA.

Deer Lodge County.

Washington Gulch.—J. Zwicky, T. P. Newton, Henry Patten and Wilson & Gillie have leased and bonded from E. H. Irvine, H. L. Frank and others, several placer claims in Washington Gulch, and will at once vigorously prosecute development upon them, says the Butte "Inter-Mountain." They intend to sink a shaft to bedrock and then work in on the channel.

Lewis & Clarke County.

St. Louis Mining and Milling Company.—This company leased the Big Ox mill and are putting it in shape for treating the ore from their mine. We are informed that it is the intention of the company to at once commence hauling 25 tons of ore per day from the mine to the mill, which is all the ore the mill is capable of treating with two shifts.

Park County.

Park Coal and Coke Company.—This company has made an assignment and its mines at Horr are temporarily closed. It is stated, however, that work will soon be resumed.

Silver Bow County.

Boston & Montana Mining Company.—The copper mines of this company are all in operation. Sinking is still in progress at the West Colusa, the shaft now being developed to a depth of 560 ft. At the 600-ft. level, connections will be made with the 500-ft. level of the Leonard. The West Colusa ledge is said to be from 40 to 50 ft. in width, and increasing in size and quality as depth is attained.

Flint Creek Mining Company.—The Butte "Inter-Mountain" says that this company's mine, on which operations have been suspended for two years, is to be reopened. The mines of this company are gold properties. A tunnel 500 ft. long is to be run in the hill, with the expectation of striking the rich gold lead that the owners are positive is hidden in the ground.

Heinze Smelter.—The new addition to this smelter, at Butte, is nearly completed, and the Western Iron Works are putting up the two converters. Two reverberatory furnaces, a blast furnace and one O'Harra roasting furnace will be added to the smelter. The Chicago Iron Works are building an engine and air compressor for the works. The smelter is treating about 110 tons of ore per day.

Rockbreaker Mine.—Preparations are being made to sink the shaft to the 100-ft. level. It is now down 40 ft. and has uncovered some good copper ore.

NEVADA.

Eureka County.

Eureka District.—During the month of July the ore shipments recorded were in sympathy with the low price of silver, and reached only 346 tons. The Diamond Company shipped just what ore they had in their bins, 271 tons, and discharged their miners until such time arrives when it will pay to take out more. Four other lots were shipped, as follows: From the Lord Byron mine, 18 tons; Richmond mine, 12 tons; Williamsburg mines, 16 tons, and sundries, 29 tons.

Storey County.

Great Western.—Work in this mine, on the western slope of Mount Davidson, has been suspended.

Storey County—Comstock Lode.

The Morgan mill, on the Carson River, will resume crushing on Consolidated California & Virginia ore shortly.

Savage Mining Company.—The latest weekly official letter says that on the 1,100 level they continue to extract ore of fair grade from the 13, 14, 15 and 16 floors; also prospecting between this and the 950 level. During the week they have hoisted 109 cars of ore, shipped to the Nevada mill 210 tons and milled 210 tons. Car samples average $27.90; battery samples average $23.76. Bullion yield for the week, $3,345.30; shipped to the United States Mint, at Carson, July 26th, 342 lbs. of crude bullion. Some men are engaged on repairs, also in retimbering the main shaft above the 950 level.

Belcher Mining Company.—This company is employing a force of 15 miners and is doing some prospecting work on the 200, 350, 400 and 600-ft. levels. No changes in the condition of the mine are reported.

(From our Special Correspondent.)

The following is the weekly tabulated statement of ore hoisted from Comstock mines and milled, with the car and battery assays, bullion shipments, etc.:

Mines.	Ore H'st'd	Car S'mple Assay.	Ore Mil'd.	Av. Bat'ry Assay.	Bullion for Week.	Bullion shipped.
Kentuck..	210	*$8.10	.....	.....	.....	.....
Occidental	35	26.00	.....	.....	.....	.....
Potosi.....	557	22.81	555	$27.77	.....	437 lbs.
Savage ...	210	27.90	210	23.76	3,345.30	342 "

*Gold.

The Virginia Miners' Union, held a meeting to consider the proposition submitted by the magnates of the lode, that a 25% reduction be made in miners' wages. The matter was referred to a committee to report upon at a future meeting. The same action with regard to the matter has been taken by the Comstock Mechanics' Union.

Hale & Norcross Silver Mining Company.—The directors of the company are holding meetings with the managers of the Savage company for the purpose of arranging for the working of both mines, which adjoin, through one shaft. The ostensible reason given is one of economy; it would be much cheaper. There is the additional advantage also that the ore hoisted out could be credited to one mine or the other just as it happened to suit the plans of the millowners, who are the actual owners and controllers of the mines.

White Pine County.

Hamilton, White Pine District.—The ore shipments for July were reduced to 94 tons, the most of which went to the Selby Smelting and Lead Company, of San Francisco, Cal., as follows: From Zoanni Brothers, 40 tons; C. A. Mathewson, 28 tons; Rocco Kragnazo, 12 tons, and Ross & Siri, 14 tons.

NEW JERSEY.

Warren County.

New Jersey Iron Ore Company.—This company, which has been operating extensively near Oxford Furnace, has been laboring for some time to straighten out its books and accounts. Its former superintendent, George F. Bird, and its general manager, Baron Forstner de Daubenoy, are both under indictment in this county for conspiring to defraud the company. The Baron was arraigned and released on $5,000 bail to appear at the September term of court, and is at present living in New York. Bird flew to parts unknown. A. E. Davis, the vice-president and treasurer of the company, says that the directors have determined to prosecute the men who have been concerned in the frauds perpetrated against the company.

NEW MEXICO.

Grant County.

The Confidence Company is the only one which suspended operations in the Silver Creek district last month, and it is believed that this shut down is only temporary. The Maud S. mill there is turning out gold and silver bullion in increased quantities since the stamps were put in and the use of the Huntington mills was discontinued. Two new mills are building and will be ready for operation in a few weeks, when the output of the camp will be very much increased. Capt. M. Cooney, whose new mill is about completed, has about 200 tons of ore out which will run nearly $30 a ton in gold and about $17 in silver. This ore runs considerably higher in gold than the average of ore taken out in the Mogollon camps.

Viola Mining Company.—An important strike was made last week in the fourth level of this mine, at Pyramid. The company has been developing the mine recently, and two or three weeks ago indications of ore were found in a drift on the fourth level. Work on the drift was pushed as rapidly as possible, and a vein of rich sulphide of silver was found. The vein is about 3 in. wide, and a sample taken from it assayed very high in silver per ton. The vein extends from the top to the bottom of the drift, but it has been followed no further. This discovery will probably liven up the camp considerably, as this ore can be mined and treated at a profit with silver at its present price.

Western Belle.—This gold mine, at Gold Hill, has been leased to William Walker, of Silver City, who has also leased the Standard mill, in which to treat the ore. Considerable development work has been done on the mine, and the ore mills from $14 to $30 per ton. The vein is from 18 in. to 2 ft. wide.

Sierra County.

It is reported that work on the tunnel through Animas Peak is progressing satisfactorily. New machinery has been put in, and it is expected that the tunnel, which will be 3,000 ft. long, will be completed next year. This tunnel is a part of one of the most extensive mining undertakings ever commmenced in the Southwest, and which is expected to more than double the gold output of Sierra County.

NEW YORK.

St. Lawrence County.

The destruction of talc mill No. 7, near Hailsborough, on the 4th inst., involved a loss of from $80,000 to $100,000, with $40,000 insurance. The mill had a capacity of 30 tons of talc daily, and with it were destroyed 400 tons of the product in its finished state.

NORTH CAROLINA.

Cabarrus County.

(From our Special Correspondent.)

Biggers Mine.—This mine has been sold to the Gold Nugget Mining Company, and will be put in operation at once.

Davidson County.

(From our Special Correspondent.)

The smelter at Thomasville will soon be in operation. The Silver Valley mine will supply most of the ore to the smelter.

Nash County.

(From our Special Correspondent.)

Mann-Arrington.—This mine is being operated by E. W. Lyon, of Pittsburg, Pa.

Randolph County.

(From our Special Correspondent.)

Mr. Beck, formerly chemist for the Thomasville smelter, is opening a promising gold prospect in Randolph County. Dr. H. A. Redding, of Cedar Falls, has struck some remarkably rich gold ore on his property. The writer saw one specimen from near the surface, with a small nugget which would weigh 1 dwt. inclosed right in the quartz.

Rowan County.

(From our Special Correspondent.)

Honeycuts.—A party of miners have erected a small mill and are operating the Honeycut mine, adjoining Gold Hill. Two prominent Nevada silver mining men have procured a bond on two properties, near Gold Hill, and will do some work.

OREGON.

Baker County.

Eagle Gold Mining Company.—This company is pushing development on its mine and has opened a vein of considerable value. Orders have been given to put a stamp mill and work has been begun on the buildings.

PENNSYLVANIA.

Anthracite Coal.

The fire in the Pennsylvania colliery, at Shamokin, has been extinguished and work was resumed on the 9th inst., with 2,000 men and boys.

The Mineral Mining and Railroad Company shut down its Cameron colliery, at Shamokin, on the 8th inst., for the balance of the week, owing to lack of orders for their product. This colliery when running full employs 500 men and boys.

Workings of Moore & Burchill's Lawrence colliery, near Frackville, and right alongside of the Reading Railroad Mahanoy plane, collapsed August 7th, carrying down into a deep opening a considerable area of surface ground, including some small buildings and the large colliery stable.

Orders have been received to start up the Keystone washery, at Locustdale, as soon as it can be gotten ready. The plant shut down some weeks ago for repairs, and since that time a thorough system of scrapers has been put in to convey the culm from the banks to the breaker instead of using dumpers as heretofore. It is expected that work will be resumed in about two weeks.

Owing to the continued drought the Mahanoy City Water Company unexpectedly on August 5th shut off the supply heretofore furnished the Reading Coal and Iron Company, and in consequence all the collieries in the Mahanoy district have shut down. Arrangements are being made to use mine water at some of these places, but operation of the collieries will be unsatisfactory and far from general.

(From our Special Correspondent.)

Lehigh & Wilkes-Barre Coal Company.—This company is preparing to strip the veins of coal in entire basins in the neighborhood of Honey Brook and Audenried. To do this, at least 20,000,000 cu. yds. of earth and rock must be removed. This is in addition to the large amount of stripping that is already under way. The material to be removed varies in depth from a few feet to over 100 ft. in places. The work will be done partly by hand and partly by steam shovels, and will be let out on contract. This work will last several years, and will add about 20 years to the life of the Lehigh & Wilkes-Barre operations in this section.

An important case affecting coal leases has just been decided in the Philadelphia courts. The facts as furnished by one of the parties in interest are as follows: In October, 1871, William L. Lance leased the coal in 88 acres of land in Plymouth Township to Thomas Broderick and others, at a royalty of 25 cts. per ton of coal that will pass over a screen of ⅝-in. mesh, reserving to himself all the culm or refuse coal. This lease was subsequently assigned to the Lehigh Coal and Navigation Company, who transferred it to the Lehigh & Wilkes-Barre Coal Company in April, 1874. Lance claimed that 486,042 tons of coal had been mined and shipped from the property more than had been accounted for, which at the rate of royalty mentioned in the lease would amount to $121,510. He also claimed $100,000 for the culm or refuse coal, which, he said, had been converted by the defendant to its own use. He also claimed $62,500 as compensation for the use of his property by the defendant company in hauling coal mined from other lands through his property, and claimed 5 cts. per ton for such coal hauled, and fixed the tonnage thus hauled at 1,250,000.

The Lehigh & Wilkes-Barre Coal Company contended that the lease in question was a sale of all the coal in the land, and that the price to be paid therefor was 25 cts. per ton for so much thereof as passed over a ⅝-in. mesh. The company also contended that the agreement in the lease that the lessor should have the culm or refuse coal was not intended to include the merchantable coal, such as pea and buckwheat coal, which passed through a ⅝-in. mesh, and it offered evidence to show that, at the time the lease was made, it was not customary under other leases to pay royalty on the merchantable coal which was made through a ⅝-in. mesh, unless it was so stipulated. The company also claimed that it had the exclusive right to use the openings made in the coal for any purpose it saw fit, without compensating the lessor therefor.

The suit was brought in Philadelphia in 1890, and the matter was, by consent of the parties, referred to S. S. Hollingsworth as referee. This week the referee filed his report, which is in favor of the company on all points, and gives judgment for the company. This case is a very important one, and will undoubtedly be of much interest to the lessors and lessees of coal lands and their representatives.

Iron.

Chestnut Hill Iron Ore Company.—Stephen S. Palmer, of New York, was appointed receiver of this company by Judge Butler, in the United States Circuit Court, at Philadelphia, August 7th. Security was required in the sum of $200,000. The bill of complaint under which the receiver was appointed was filed by Andrew J. Kauffman, of Columbia, attorney for the estate of Moses Taylor, deceased, of New York. The company owns extensive iron ore mines near Columbia, Pa., three iron ore furnaces in that vicinity, and iron ore mines in York County, Pa., and Carroll County, Md., besides being the owner of what is known as the Bachman Valley Railroad, a short road in York County, Pa., and Carroll County, Md. The bonded indebtedness of the company secured by mortgages is over $250,000, and its floating debt almost $200,000. At one time it was one of the largest manufacturers of pig iron in eastern Pennsylvania, but its furnaces at Columbia have been out of blast for some months. The balance said to be due on the company's bonds issued in January, 1892, was stated as $328,137. The plaintiff, Moses Taylor Pyne, surviving executor of Moses Taylor's estate, and trustee of the mortgage securing the bonds, it was stated, is also the holder of 3,194 shares of the company's stock, is a creditor for $50,432, and there is due on the bonds which the estate holds $273,360.

Zinc.

Lehigh Iron and Zinc Works.—The working force in the different departments of these works, at South Bethlehem, Pa., has been considerably reduced owing to the dullness of the times. About 80 men have been suspended. Men with families are given the preference to remain at work.

Washington County.

Monongahela Natural Gas Company.—A big gas well has been struck by this company on the Swagler farm. This tract consists of nearly 2,000 acres, and drilling for gas commenced over a year ago. The first well had a pressure of 40 lbs. to the minute and about 600 lbs. rock pressure. The next showed over 75 lbs. pressure to the minute. In the next well sunk, and at a depth of 2,221 ft., oil was found. The well was drilled deeper, and at 2,700 ft. the last well was struck. The pressure of gas threw the tools out and it was impossible to close it. The gas was allowed to blow out and the well has just been closed.

SOUTH DAKOTA.

Custer County.

Gold Basis.—Assays of ore from this property, 10 miles east of Silver Cliff, and owned by S. B. Stanfield and others, show from 8 to 19 oz. gold

per ton; silver, from 3 to 100 oz. Much of the ore contains free gold.

TEXAS.

Coleman County.

Star & Crescent Coal Company.—This company has been organized by J. W. Gibson, W. L. Vining and others, with $100,000 capital, to mine coal near Coleman.

Erath County.

Adair Coal Mining Company.—This company, it is said, has interested Eastern capitalists, and will soon commence to open coal mines, near Thurber, Tex.

UTAH.

Beaver County.

The Rob Roy 10-stamp mill, on Indian Creek, in the Beaver district, has started. Good reports come from this district that the miners are pushing development work and good ore is being extracted.

Cache County.

Rich-Cache Mining Company.—The properties of this company are located on the eastern slope of the Bear Lake Mountains, 35 miles east of Logan. Don Kimball, the superintendent, has had three shafts sunk upon different lodes. Ore has been taken from the main shaft that assayed 76½% copper, 20 oz. silver and $9 in gold. This was taken from a drift of 113 ft. on the 50-ft. level of shaft. The vein is uniformly about 4 ft. in width with one-third pay-ore. In several shafts the average copper is given at 43·7% with gold and silver proportionately. Other locations will be made at once and in copper fields fully developed.

Salt Lake County.

(Reported for the "Engineering and Mining Journal.")

R. M. Jones has notified the Salt Lake City council that he has accepted the terms of the electric light franchise offered him. This means that the Big Cottonwood Power Transmission Company will soon be incorporated. It comprises one of the most extensive plants for furnishing light, fuel and power for manufacturing and milling purposes in the West.

Bingham Placers.—Since the closing of many silver mines at Bingham, the miners are devoting their attention to the placers. A large number of men find profitable employment in washing out gold. One lot of gold bars valued at $800 was assayed during the week. A. Klopenstine, proprietor of the Griffin House, is sinking a placer shaft to bedrock in the hotel yard. The shaft is down 30 ft. and some excellent panning is reported.

Blue Jay Mining Company.—At the annual meeting in Salt Lake City, August 2d, the following officers were elected: W. H. Chamberlin, president; J. R. Letcher, vice-president; John T. Lynch, secretary and treasurer; these gentlemen, with Jackson Bolton and O. D. Hendrickson, will form the board of directors for the ensuing year.

Tooele County.

Hyrum Parker, of Tooele, has recently discovered a good prospect carrying iron, gold and silver, in the mountains near Garfield Beach. The claim is being developed as fast as possible.

VIRGINIA.

Botetourt County.

Troutville Iron Mine.—A half-interest in this mine has been sold by Whitehurst & Smith to Pennsylvania parties for $10,000. A new company is to be organized at once to improve the property.

WASHINGTON.

Tacoma Smelting and Refining Company.—This company informs us that its smelter is running as usual, and that it is receiving and buying ores from old customers the way it always has done; although until the silver question is in a more settled state, the company is not hunting up any new customers, and not anxious to buy high-grade silver ores. At present the bullion is running more in gold than in silver, and contracts for gold and lead ores outstanding will keep its smelter going yet for several months.

Okanogan County.

Consolidated Coal and Mining Company.—This new company has located 2,000 acres of coal land and is actively engaged in developing the property.

(From our Special Correspondent.)

McConkey Mines, Horse Springs.—This group of mines has been bonded to Kommreau & Miller, of San Francisco, the stipulated price being $100,000. It is a working bond and the property is regarded as one of the best in the county.

Paymaster.—On this mine, says the Spokane "Review," 300 ft. of tunneling in different places has been done. Assays on the ore average 6 oz. in silver and from $80 to $95 in gold. Development now shows 8 ft. of clean ore. The property is owned by G. D. Chilson and Mr. Vandervoort. They have three locations on this ledge, showing the vein the full length of the claims.

Rush Mining, Milling and Smelting Company.—This company has been organized at Spokane, with the following directors: M. G. Barney, M. A. Rush, John Boyd, W. C. Jones and Jacob Paff. The directors elected the following officers: M. G. Barney, president; M. A. Rush, vice-president; John Boyd, secretary, and Jacob Paff, treasurer. Messrs. Barney and Rush have added to the company the Rush group of mines for a consideration of $200,000. The mines are located on Mt. Chapaca. The Rush mine, on which the most development work has been done, is on the east side of Mt. Chapaca. Recent developments show a well defined true fissure vein 12 ft. wide. The owners have a shaft down 150 ft., all the way in quartz. The ore carries gold and silver. Assays have run as high as $160 in gold. In this group are also the Boston Boy and the Mountain Chief, which have been bonded by the same company, and are located on the same ledge as the Rush mine. Both these properties carry gold, and the Mountain Chief runs high in silver. It is the intention of the company to continue the development by sinking the shaft on the Rush deeper and by running tunnels and doing other requisite work.

Pierce County.

(From our Special Correspondent.)

Big Bonanza Mining Company, Tacoma.—This company has incorporated with a capital stock of $10,000,000, divided into 100,000 shares. The company has a location of 220 acres of land in Eastern Oregon, and proposes opening out upon it in a large way. The directors are: H. Raymond, San Francisco; E. L. Lewis, Chicago; C. B. Askew, California; S. Ryder, W. F. Sargent, J. W. McKeehon, Tacoma; W. C. Bronson, L. E. Rice, Portland, Ore.

Spokane County.

A discovery of coal is reported on Hangman Creek, near Spokane.

Stevens County.

D. L. Kenyon, representing Spokane parties, has located the placer ground west of the big eddy. The gravel is near the river and very rich. It will not be possible to get water on this ground in time to accomplish anything this season, but by springtime they hope to be ready to do a full season's work. They will get water from Ledway Creek. It will require two miles of fluming to get 600 ft. fall. They will have 800 in. of water and 500 ft. of gravel.

Metaline District.—The Colville "Republican" says that the placer claims owned by Hamilton, Barnett & Scott have been opened to active operation after spending about $2,000 in getting water on the ground. These placer bars are situated on the west side of the river, at the mouth of Flume Creek about three miles below Metaline. They are working one monitor on a depth of 65 ft. of gravel and have 600 in. of water with 65 ft. fall. They are working a force of five men at the beginning, but soon as room can be made a double force will be added. There are no other placers at work at this time.

WYOMING.

Albany County.

Douglas Consolidated Mining and Milling Company.—This company has completed its organization at Laramie, and has secured title to some 20 miles of Douglas Creek placer grounds and will go to work at once to put in hydraulic works and open and work. The capital stock of the company is $3,000,000. It is intended to put in hydraulic works which will cost $250,000. The following are the officers of the company: President, M. N. Grant; vice-president, W. H. Snelson; treasurer, M. A. Hance; secretary, C. S. Dawson; attorney, C. W. Bramel; consulting engineer and business manager, J. R. Roots; superintendents of mines, L. B. Rhodes and John P. Hughes. The principal office of the company will be in Laramie, with a branch office in Denver. Work will be begun at once; a number of men will be employed, and the work of putting in hydraulic appliances and opening the ground will be prosecuted with diligence so as to be ready for a big season's work next spring.

Carbon County.

Consolidated Mining and Milling Company.—This company has been organized with office at Laramie to develop mineral lands in this county. The capital stock of the company is $3,000,000. The directors are M. A. Grant, M. A. Hana, C. B. Richie, C. W. Bramel, W. H. Snelson, J. R. Root and Edwin S. Raymond.

Uintah County.

A placer district of considerable value has been found on Green River, in this county, according to the Cheyenne "Sun." The place is accessible by wagon roads, and there is said to be an excessive supply of water.

FOREIGN MINING NEWS.

BRITISH COLUMBIA.

Slocan District.

(Reported for the "Engineering and Mining Journal.")

Trail Creek.—A new mine is now being opened by F. C. Loring and G. A. Sonnemann, the outlook for which as a gold producer is promising. The vein is a true fissure with walls of diorite, and the line of division between the veins and the walls are plainly marked. The development thus far is only superficial, but the vein cuts the ridge of the mountain at right angles and pits sunk on either side show a strongly defined vein at the surface. The slope of the ridge really gives a development for 200 ft. from the summit. The ore is a sulphide of iron assaying about 2 oz. gold and some silver. Some money has been spent drifting through the rock to cross-cut the vein 200 ft. down. At that point the vein is about 6 ft. in width and assays better than further up the mountain, where shafts have been sunk and where the vein is not over 3 ft. wide. The prospect is so good that the owners intend to start in mining at once. The ore is unoxidized even at the surface.

CHILE.

The secretary of the Nitrate Committee writes to the London papers that in spite of reports to the contrary the relations of the committee with the Chilean Government are harmonious. The function of the committee is the adjustment of production to consumption to prevent overstocking of the market.

ENGLAND.

The general coal strike, which has been reported in our columns, was not so universal as the cable dispatches indicated, being confined to the Midland, Eastern and Welsh collieries, the Norman miners still remaining at work. "Money and Trade" says: The miners of Northumberland and Durham have refused to be coerced into a strike. It is true that they have lodged claims for a substantial advance in wages at the behest of the Federation, but they do not expect to get it, and certainly will not fight for it. Meanwhile the employers are conferring with the men in a perfectly friendly spirit, and will, in all probability, soon come to an agreement with them. In any event, no general stoppage in either county is now feared. The Durham men have not yet recovered from the disastrous strike of last year, and the Northumbrians are too shrewd to stop work at the height of the Baltic season, and when trade is being stimulated by the stoppage in the Midlands. This, we are assured, is the feeling in the North, whatever the issue may turn out to be. It is daily becoming clearer that the Federation strike will divert a good deal of trade to Tyneside. That is always the effect of strikes. It was so in the case of the great Durham stoppage last year, and it will be so in the case of the present crisis. The offices of Newcastle coalowners are full of inquiries, many from Yorkshire itself.

MEXICO.

Durango.

(From our Special Correspondent.)

Candelaria Mining Company.—A shipment of bullion, valued at $16,000, has been received at the local office in San Francisco.

NEW SOUTH WALES.

Broken Hill.

Block 10.—The great rush of water reported at the 815-ft. level, Campbell's shaft, says the "Australian Mining Standard," was met in the east cross-cut near the Central boundary, and took possession of the workings. The miners who were driving had just fired the shots in the face of the cross-cut country rock, and water immediately commenced to flow, and has been rushing in ever since at the rate of 12,000 gallons per hour. The water rapidly rose 40 ft. up the main shaft, and for a long time the pumps were unable to make headway against the influx. The water is now decreasing, and should be completely removed in a few days. An experience of this sort is new on the Barrier, though the manager was somewhat prepared for such an emergency. The inburst of water was taken as an evidence that the central or eastern leg of the lode had been tapped, and considerable excitement followed upon the event.

Junction North.—This mine, remarkable for its ore and occurrence, has about 500 tons on haulage. All the faces show garnet sandstone ore, massive and hard, with some copper pyrites. Stoping only is the order of the day, attention being given to the treatment of the ore in sight and obtainable. The The newly-arranged lixiviation plant is getting in full swing.

New Broken Hill Extended.—The main shaft being down just over 1,330 ft., and the directors having spent £44,000 on the property they are requesting aid from the Government Prospecting Vote to further sink the shaft and to cross-cut at 1,330 ft. for the lode.

ONTARIO.

Calebogie Iron Mine.—A Kingston letter says that a sale of iron ore from this mine has been made to a furnace in Pennsylvania. The mine has not been worked for three years.

PORTUGAL.

(From an Occasional Correspondent.)

Portugal, so far as proved, seems to be poor in minerals, except in a few localities near the Spanish frontier. Some outcrops of small veins can be found throughout the country from which rich samples for analysis can be obtained, but the veins are generally so narrow and broken up by the disturbed condition of the encasing strata as to render development difficult and unprofitable. Two or three tin mines are worked on a small scale which might be made profitable with better management and proper machinery.

There is a total absence of enterprise among the natives of the country and no sign of industrial activity except in farming, and that is carried on in a very ineffective way. There are a few antimony mines which can be worked at a profit when "star" antimony sells at £60 per ton and upward, but not at present prices. There are some handsome marbles, which, with the large water power available, might be worked to advantage. There is one slate quarry in operation near Oporto operated by Eng-

lish capital. Upon the whole, it may be said that the mineral development of Portugal is still in the future.

QUEBEC.

Companies are reported in the course of formation for working the mica mines of Charlevoix, and the red sandstone quarries of Trois Pistoles; the latter, with a capital of $100,000, has been formed at Boston.

RUSSIA.

In a Foreign Office report on the trade of Taganrog and district in 1892, British Consul Talbot states that during 1892 3,536,801 tons of coal were dispatched from the collieries situated in the Donetz Basin, an increase of 395,751 tons as compared with 1891; then the quantity was estimated at 2,131,050 tons. In 1881 the quantity of coal carried by the different railways was 726,305 tons, which quantity was almost doubled in 1887, and has now reached 2,526,801 tons. All the railways show an increase on the quantities carried the previous year. The quantity of anthracite coal sent off from the Grushetka and Vlusser districts during 1892 was 484,560 tons, some of which found its way to the Danube, Constantinople and the Black Sea ports. The outbreak of cholera and difficulty of obtaining workmen greatly affected the coal industry, and the output was considerably curtailed in consequence. This is noticeable in the exports of coal from Mariupol to the Azov and Black Sea ports, which were 181,850 tons, as against 198,410 in 1891, or a decrease of 16,560 tons. The experiment of shipping Donetz coal to Constantinople proved a failure, partly owing to the cholera and the stringent quarantine regulations imposed by the Turkish Government, the business being restricted to only one steamer cargo of 1,375 tons. Should nothing unforeseen occur, however, it is intended to make another trial during the coming season, and a steamer has already been chartered for a number of consecutive trips. Several steamers have also been taken to run to the Black Sea ports, and efforts are being made to develop the coal trade by opening agencies at all the ports. Since the opening of the new coal port at Mariupol, Taganrog is rapidly losing its importance as a coal-exporting centre, and shipments have fallen off considerably. From 50,790 tons in 1887 they have dropped to 7,365 tons in 1892. In comparison with 1891 there is a decrease of 5,127 tons. The imports of foreign coal at South Russian ports during 1892 again show a marked decrease, and it is being replaced by Donetz coal, which, while the existing heavy duties remain in force, can always undersell the English article.

The probable total output of bituminous coal for 1893 is reckoned at 3,633,300 tons, of which about 36,850 tons will go toward local consumption (ironworks at Hughesovka, etc.), and the balance will will remain for supplying the different Russian markets. Besides this it is computed that about 630,900 tons of anthracite coal will be mined.

SOUTH AFRICA.

Diamonds.

The great diamond recently found at Jagersfontein weighs 971 carats, being 3 ins. in length and 1 in. in depth, of blue-white color. It is the largest yet found in South Africa. Previous stones of extraordinary size were of 404 carats, found at Dutoitspan in 1885; 302 carats, in the De Beers workings in 1884; 150 carats at Bultfontein in 1884, and 150 carats at Kimberley in 1880.

Mashonaland.

Extensive mining operations are now in full progress at Umtali, Victoria and Mazoe, in this new gold district, and the results so far are reported to be very encouraging.

The Johannesberg "Star" says that on the railroad from the coast at Beira to Fort Salisbury the locomotive is now running 70 miles from Fontesville, and the line is expected to be opened to the first terminus, five miles further inland, about the end of next month. The earthworks for the next section of 30 miles are well advanced, the material is already on the water, and the trains will be running to a point 40 miles from Umtali and 200 from Salisbury before the next rainy season begins.

SWEDEN.

An iron deposit of considerable richness has been discovered in Dalecarlia, near Dakern Hotien. The opening is four kilometers from the railroad and is said to have yielded ore with 70% metallic iron.

VENEZUELA.

El Callao.—The telegraphic report to London gives the gold production of this company's mine at 3,058 oz. for July.

MINING STOCKS.

[For complete quotations of shares listed in New York, Boston, San Francisco, Aspen, Colo.; Baltimore, Pittsburg, Deadwood, S. Dak.; St. Louis, Helena, Mont.; London and Paris, see pages 180, 181 and 182.]

NEW YORK, Friday Evening, Aug. 11.

The chronicle of dullness in the mining stock market which has appeared in this column weekly for the past year or two must be repeated this week. The volume of business transacted at the Consolidated Stock and Petroleum Exchange was very small, amounting to a total of 2,150 shares. This is a little better than last week, but the market as a whole is as discouragingly slow as ever. The public takes no interest in mining stocks, and the continued depression in the silver market, as well as the closing down of hundreds of silver mines all over over the West, all tend to maintain the "masterly inactivity" in the mining stock market which has prevailed for months past.

With a single exception, all the trading done during the week was in the Comstocks, of which a few shares changed hands. Old timers are again on the "qui vive," anticipating some movement on the part of the Comstock magnates. This watchful attitude is based on nothing more tangible than the deeply-rooted belief that the milling "ring" is capable of speculation even under the present conditions.

During the past week Consolidated California & Virginia was in fair demand; 300 shares were sold at $1.35@$1.45. Ophir shows sales of 500 shares at 40@90c. Of Savage 200 shares changed hands at 45c. Other sales were 500 shares of Comstock Tunnel at 7c.; 50 shares of Potosi at 75c. and 100 shares of Union Consolidated at 80c.

Of the Colorado stocks Leadville Consolidated was the only one which was traded in; sales of it amounted to 500 shares at 13c.

A telegram from the Victor gold mine, dated August 7th, says: "The last two cars of ore shipped to the smelters netted $8,000 gold each." On September 1st the price of the stock will be advanced to $5 per share and the dividend will be increased.

None of the California stocks was traded in. The superintendent of the Brunswick Consolidated Gold Mining Company writes as follows from Grass Valley under date of the 2d inst: The ledge in the 700-ft. drift is from 8 to 10 in. wide. It shows a little gold but is not quite so heavily sulphuretted as the last we took out. I think the next taking down will be better. The ledge in the upraise is very small at present, but from the appearance of the ground it will soon be larger. During the past week we made 6 ft. of ground in the drift and 7 ft. in the raise. Length of drift 123, ft.; height of raise 33 ft.

The Horn Silver Mining Company is producing and selling about 1,200 tons of ore per month. The ore is running somewhat better in lead and silver.

Boston. Aug. 10.

(From our Special Correspondent.)

There is not much to be said regarding the market for copper stocks. The volume of business is very light, and while there are some orders to buy small lots of the dividend-paying stocks, the speculative element is entirely wanting. There were a few orders to buy Boston & Montana stocks, and, in the absence of any pressure to sell, the prices were fairly maintained, although they closed at a decline of $1 per share from the highest price for the week.

Butte & Boston advanced to $6 for round lots, and a few small orders were filled at $6¼. The closing, however, was at $5¾.

Calumet & Hecla has ruled strong throughout the week and advanced from $250 to $260 with sales at the intervening figures. These are taken in small lots by investors, who look for better prices when the financial situation is cleared.

Tamarack also scored a good advance over last week in a small way, with sales from $125 to $130, a gain of $9 per share over last week.

Quincy advanced from $92 to $100 for 40 shares, a lot of 5 shares selling subsequently at 95¼.

Osceola was a shade firmer, selling at 22@23, the higher price being paid for small lots.

Atlantic sold at $8, a gain of ⅞ over last week.

Franklin was quoted at 9½@9¾ for 100 shares only.

Centennial advanced from $2 to $2¼ for 200 shares.

Wolverine declined to $1, and Tamarack, Jr., sold at $12 against the last sale at $14, June 28th.

Catalpa (silver) sold at 10@9c. The last reported sale of this stock was at 15c. January 17th.

3 P. M.—Boston & Montana declined to 17¼. Osceola to 22½ and Quincy to 95, all on small lots.

San Francisco.

SAN FRANCISCO, August 11 (*By Telegraph*).—The opening quotations to-day are as follows: Best & Belcher, 60c.; Bodie, 5c.; Belle Isle, 10c.; Bulwer, 5c.; Challar, 30c.; Consolidated California & Virginia, $1.30; Gould & Curry, 30c.; Hale & Norcross, 55c.; Mexican, 40c.; Mono, 5c.; Ophir, 70c.; Savage, 40c.; Sierra Nevada, 35c.; Union Consolidated, 35c.; Yellow Jacket, 45c.

London. Aug. 2.

(From our Special Correspondent.)

There has been a general feeling of listlessness pervading all branches of the mining stock market in London during the past week. The expectation that last week's settlement would be a disastrous one was only partially realized. The fact is that when the Stock Exchange takes it into its head to expect a crop of defaults at an approaching settlement, every member of the exchange carries on his business during the time of anxiety with great caution and with a view of securing his own position, so that anything like a general crash is avoided. This was certainly the case last week. There is a prospect of a like revival of business between now and the next settlement, for there is an interval of three instead of two weeks between, though at this period of the year the improvement cannot amount to much. A little incident occurred toward the end of the last settlement, which, foolish in itself, at any rate acts as a straw to show the way the wind blows. Outside the Stock Exchange a policeman was trying to clear the roadway for the passage of a royal carriage. The members of the Exchange who happened to be on the pavement at the time with a sudden accession of boisterous fun surrounded the policeman, and pretending to resent his interference with their rights to blocking up the street, carried him bodily into the Exchange and made him a butt of all sorts of pranks and jokes. This gaiety on the part of the members, though rude, was certainly evidence of a change from the dark and deep anxiety and depression which have been universally reflected in the faces of members for months past.

During the week there have been very few dealings in American mining stocks, and the fluctuations in values have been limited in range. The prices and tone generally have, if anything, improved. Elkhorns and Golden Feathers are lower, and Jay Hawks have ended at the same price as a week ago after a fall and recovery. Otherwise there is a slight advance in prices. De Lamars have risen two points; Alaska Treadwells are quoted a little higher; Pcormans also have recovered the 6d. lost last week. The only noticeable business during the week has been in low-priced speculative shares. It is really lamentable to have to report that the only dealings of any vigor have been in such stock as Palmarajos, Jackson Gold Fields and Holcomb Valleys, and that the prices of the stocks have hardened and risen fractionally because of a demand. Yet to such a depth has the market for American mining stocks fallen in London.

It will be remembered that early in the year the directors and shareholders of the La Plata Company determined to abandon, at any rate temporarily, its silver-lead mine property in Colorado, and make arrangements to acquire a hundred mining claims in Mozambique territory in southeast Africa. Mr. W. M. S. Niness was sent out in May to Mozambique to examine the gold and other claims which had been brought to the notice of the company. He has now been on the spot for some little time, and has sent over his preliminary report of first impressions. He states that numerous quartz and alluvial claims have already been brought to his notice, and reports that one claim at Umtali shows a high gold content. A complete report based on his own minute examination is not expected for some time, but important points in his investigations will be communicated to the shareholders at short intervals. The company's mining operations are quite suspended at Leadville, and the late events in Colorado completely annihilate any hope that the directors ever had of starting work again there.

The Chancery division of the High Court of Justice has had two cases before it this week for the compulsory winding up of American mining companies—the North Mexican Milling and Mining Company, Limited, and the General Phosphate Corporation of Canada.

The affairs of the North Mexican Milling and Mining Company presented a state of entanglement difficult to unravel. The affairs were mixed up with the North Mexican Silver Mining Company, which was voluntarily wound up, and with a guaranty company called the Mexican Mines Development Company to such an extent that it was difficult to show who had the real interest in any property that might be available. The judge held that there would be some property available for the petitioning shareholders who desired the compulsory winding up of the company, so he made the usual compulsory winding up order.

The case of the General Phosphate Corporation was similar. An original shareholder petitioned for the compulsory winding up of the company because the phosphate properties acquired by the company were valueless because of their inaccessibility. No trade has been carried on by this company, no profits have ever been made, and the phosphate property was inaccessible on account of the absence of railroads. There still remains a portion of uncalled capital, and as the debenture interest has not been paid, and as there is no realizable assets, the uncalled capital on the ordinary shares is likely to be seized by the debenture holders. Several ordinary shareholders have been petitioning to be released from this liability, on the ground of fraudulent misrepresentation. If such petitions were successful, it would be a case of freeing some shareholders at the expense of the rest. For this reason the present petition for compulsory winding up was brought, in in order to protect the general shareholders. The petition was granted.

The Middlesbrough Town Lands Company, which is responsible for the collapsed boom in Middlesbrough, Ky., is about to mortgage its property by issuing mortgage debentures. The collapse of the boom and of the industries started by the boomers took place in February and March, and since that time no income has been made and no business done. All the same liabilities have been going on and accumulating and there is an indebtedness of £15,000 or so falling due almost immediately. To meet this, endeavors have been made in England and America to finance these obligations temporarily, but without success. There is nothing left but to mortgage the property and it is proposed to issue £75,000 worth of debentures, of which £40,000 worth will be offered to shareholders at once. These debentures will carry 6% interest, with the right on the company's part to redeem them at any time on giving six months' notice at 10% premium, and with the right on the part of the holder to convert at any time into fully paid shares of the company at par. It is hoped that with this money so raised in hand it will be possible to provide against a continuance of the depression and to start the South Boston Company's foundry, which already has business awaiting it. Further information will no doubt be available after the meeting of shareholders has been held.

METAL MARKET.

NEW YORK, Friday Evening, Aug. 11, 1893.
Prices of Silver per Ounce Troy.

Aug.	St. Ex.	London Pence.	N.Y. Cts.	Value of sil. in $1.	Aug.	St. Ex.	Lond P	N. Y. Cts.	Value of sil. in $1.
5	4·83¼	33½	72¼	0·559	9	4·87	34⅛	75	0·580
7	4·84½	Hol.	72¼	0·559	10	4·86¾	34¾	75¾	0·586
8	4·85¼	34	73½	0·569	11	4·83	31⅝	75	0·580

London market advanced sharply this week owing to a good demand for China trade and scarcity of supplies. The London market closes easier with downward tendency, owing to allotment of India Council bills at a decline. Supplies in our market are limited, as the reduction in smelting output is now being felt.

The United States assay office at New York reports the total receipts of silver for the week to be 61,000 ounces.

NOTES OF THE WEEK.

The President's message was like most documents from the same source, straightforward and to the point, recommending the immediate repeal of the purchasing clause of the Sherman law as the relief demanded by the business interests of the country from the present condition of affairs. The message treated only of financial conditions and affairs, all consideration of tariff reform and other matters being postponed to the future. It has been generally well received and met with approval from all quarters.

Unfortunately Congress has shown a disposition to hesitate, to dicker and to seek for partisan advantage, which is somewhat discouraging in the present state of affairs. The committees of the House have not yet been named, and this is taken as an excuse for postponing the business which ought to be settled at once, and for which the extra session was called. The only way to hurry up matters would be the strongest possible expression of the feeling of the country.

The scarcity of currency, which is one of the features of the present stringency, still continues, and 3% and 4% premium has been paid in New York during the present week, although to-day there is an indication of a decline in the rate, due, perhaps, more to an increased supply than to a falling off in the demand. Part of this supply comes from the large gold importations, part probably from the drawing out of hoarded supplies by the premium, while the market may also be somewhat affected by the anticipation of large issues of national bank notes. As stated last week, many of the large banks in New York and elsewhere, which have hitherto had little or no circulation, are making arrangements to deposit bonds and take out their equivalent in currency, and this movement will probably be an extensive one, as it is evident that the banks generally appreciate its importance.

Call loans are a little easier to obtain, but time money continues to be scarce and very closely held. A good deal of the scarcity, both of money and currency, is due to the apprehensions of the savings banks which have been everywhere strengthening themselves in anticipation of sudden calls or runs. This action is, of course, necessary on their part, but at the same time it is to be regretted that it tends to increase its stringency.

Imports of gold continue large. Up to to-day over $10,000,000 were received in New York from Europe and nearly $10.000,000 more are reported on the Atlantic. The Bank of England is apparently unwilling to draw down its gold reserve any further, and has taken the double step of raising the rate of discount to 4% and the selling price of gold eagles to 76s. 10d. It is said also that the bank will practically refuse to sell any more eagles. Up to and including August 10th the exports of gold from London to the United States were £1,951,000 for the week. The action of the bank in London, it is thought, will compel the drawing of supplies from the large reserves of the Bank of France.

An incident of the gold import is the receipt at San Francisco from the Shanghai Banking Corporation of $170,000 in gold bullion, which was at once sent to the mint. This is the first recorded importation of gold direct from China. We are not informed as to whether this gold is the production of the Chinese mines or whether it is foreign bullion reexported from China.

Th importation of gold has been rendered possible by the present price of exchange, due to the large exports of wheat to Europe. It is not at all likely, however, that the imports would have reached their present amount, had it not been for the premium on currency, which increases largely the profit on the transaction. As long as present conditions last the import is likely to continue.

Bank failures continue to be reported, but those of this week can generally be attributed to local conditions and local weakness. While stoppages of manufactories continue to be announced there is some reaction, and stronger concerns are generally keeping open their establishments as far as possible. Many, however, are feeling their way cautiously toward the reduction in wages, which seems to be inevitable in most trades.

Support for the bimetallists comes from an unexpected quarter and the address of Mr. Balfour, in London, the substance of which is given on another page, deserves careful attention. Mr. Balfour has met with much abuse from political opponents in the long and heated controversy over Home Rule in Parliament, but no one has denied him credit as a careful student and a clear thinker on questions of finance and general government. While avowing his belief in bimetallism he full realizes the impossibility of establishing or maintaining it without international action, and his remarks tend very much in the direction of the International Monetary Conference which the "Engineering and Mining Journal" advocates.

The bill for repealing the Sherman silver purchase act was introduced to-day (August 11th) in Congress by Mr. Wilson (W. Va.), and it is announced that general debate is to be limited to 11 days, and 3 days more for five-minute speeches, when a vote is to be taken.

The vote first to be taken is on the bill to be presented as a substitute for the Wilson bill, providing for free coinage at the ratio of 16 to 1.

If that fail, then at ratios running from 17 to 1 up to 20 to 1; if they all fail, then on the revival of the Bland-Allison act of 1878, and then on the original measure.

This will bring the final vote on August 28th. There should be no doubt of the repeal of the silver purchase clause, and of the prompt voting down of every attempt, at any ratio whatever, to impose free coinage on this country. Free coinage at any ratio would mean the single silver standard and financial slavery to European gold standard countries.

Wall street is encouraged. What with $5,000,000 gold come in to-day (Friday), and the programme of Congress agreed upon the "bulls" have become more courageous, and stocks are going up. Currency which a few days ago was selling at 3 and 4% premium is down to 1%, and the genera' outlook is more encouraging.

Domestic and Foreign Coins.

The following are the latest market quotations for the leading foreign coins:

	Bid.	Asked.
Mexican dollars	$.59	$ 60
Peruvian soles and Chilian pesos	.52½	.54
Victoria sovereigns	4.87	4.88
Twenty francs	3.86	3.89
Twenty marks	4.74	4.78
Spanish 25 pesetas	4.75	4.80

It is still impossible to chronicle an improvement, for, while gold is flowing freely into the country, the large premiums bid for currency prove conclusively how strained matters are; but, at the same time, the very payment of such premiums has made further imports of gold possible even although rates of exchange are at such a point as, in ordinary times and circumstances, would prohibit imports and even admit of exports of the yellow metal. With these conditions governing it is little wonder that the markets for all metals are sagging.

Copper is in a little better demand, although consumers continue to buy only very moderate quantities, being able to get all they want at 9¾c. for Lake, and not needing as much as ordinarily, as most of the mills are now running but four days in the week. Electrolytic copper is to be quoted as nominal at 9½c., while for casting the comparatively highest price of 9⅝c. is paid, very little being offered for sale. Arizona pig copper is not to be had, holders preferring to await better times, but several contracts for furnace material have been concluded on easier terms.

The market abroad has been easier, Calumet & Hecla eagerly pushing sales at prices which have caused the decline here to £9 3s. 4d. G. M. B's have eased off, touching £41 5s. for spot, but closing slightly firmer at £41 10s. for spot, and £41 17s. 6d. for three months prompt. The consumptive demand at the lower prices is very good, but it is questionable if further pressure from America can success fully be withstood, although there is some demand for copper to be exported to the East. We quote: English tough, £45@£45 10s.; best selected, £46@£46 15s.; strong sheets, £52@£53; India sheets, £50@£50 10s.; yellow metal, £4⅝.

The exports of copper from the port of New York during the past week were as follows:

Copper:				
Liverpool—Alaska	45 casks	56,250	"	6,000
" "	224 pkgs.	22,400	"	3.360
" Teutonic	45 casks	56,250	"	6,000
" Campania	322 pigs	112,176	"	11,000
" "	1 case	.....		100
Hull—Colorado	20 casks	25,000	"	2,750
London—Manitoba	1 cs.plates	.....		125
Swansea—Monomoy	778 pigs	229.485	"	22,000
Havre- Red Sea	70 cks. ad'l 87.500		"	9.625
" Parahyba	677 casks	848,270	"	92,445
" "	2,430 pigs	358,425	"	35,000
" La Britagne	69 casks	77,300	"	9,750
Bordeaux—Yumuri	926 bars	56,039	"	12,200
" "	416 plates	56,903	"	
Marseilles—Hindoostan	9 casks	11,259	"	1.200
Hamburg—F. Bismarck	43 pkgs. bars			3.035
" Sorrento	20 bols.	25,000	"	2,500
" "	29 bxs (old)	3,452	"	242
Stettin—Bohemia	18 casks	22,500	"	2,400
" "	987 plates	134,463	"	11,000
Rotterdam—Veendam	80 bbls.	100,000	"	10,000
" "	500 bars	67,209	"	7,196
" Edam	316 pkgs.	112,180	"	10,490
" Winchester	140 cakes	22,649	"	2,400
" "	636 pigs	170,632	"	17,000
" "	1,201 slabs	133,731	"	13,600
Copper matte:				
Liverpool—Alaska	7,155 bags	780,000 lbs.		$35,000
" "	3,875 sacks	775,000 "		23,000
" Runic	3,739 bags	485.2?4 "		20,000
" Teutonic	1,871 bags	228.092 "		10,000
" "	4 casks ore	3,992 "		1,996
Swansea—Chicago City	92 casks	122,809 "		5,500

The exports continue very large.

Tin.—The market continues to labor under the adverse financial influence, and lower prices have again to be reported, viz.: 18¾ for spot, 19c. for September and 19⅛@¾ for October. Transactions are small, but shipments to the interior continue at quite a fair rate.

The London market has been steady at about £81 to £81 5s. for spot and three months prompt. Of course the higher prices for silver will run up the sterling cost price of tin.

The Bureau of Statistics gives the total imports of tin into the United States for the year ending June 30th at 61,076,464 lbs., of which 231,204 lbs. were re-exported, leaving the net imports 60,845,260 lbs. The figures for the consumption of tin in the United States are: Stock for July 1st, 1892, was 3,800 tons; imports for year, 27,163 tons; total, 30,963 tons. Deducting the stock on hand June 30th, 1893, put at 9,910 tons, leaves 21,053 tons as the amount used. Of the total importations 1,197 tons were received at Pacific Coast ports.

Lead.—In this article there is very little doing, consumers covering only their moderate immediate wants at 3¼@3 30, which figures are higher than those that have to be quoted if it was not that there is very little pressure to sell. No doubt production has fallen off considerably, but consumption, too, has decreased fully as much, so it is doubtful if an early advance of any moment is probable.

The foreign market holds its own, with Spanish at £10 to £10 2s, and English lead at 2s. 6 d. more.

St Louis Lead Market.—The John Wahl Commission Company telegraphs us as follows: Lead rather steadier, and the recent low prices seem to have brought out quite a number of inquires at 3c. which is the practical value, there are at the close more buyers than sellers.

Spelter is indeed dull, with metal accumulating at the smelters because of the demand from galvanizers being almost nil. The coal miners' strike appears to have passed away. We quote the market in East St. Louis as nominal at 3·85@3⅞.

Abroad the market is about steady at £17 7s. 6d. for good ordinaries and £17 10s. for specials.

Antimony is dull, with Cookson's quoted at 10¼c. L. X. at 10c. and Hallett's at 9¼@9⅜c.

Nickel.—There is nothing new to report except that a representative af Ludwig Mond's process is in this country with the object of introducing it, and the working costs mentioned are extremely low, presaging much lower values for the metal.

Quicksilver.—There is nothing new to report. Quotations are: New York, $37; London, £6 5s.

IRON MARKET REVIEW.

NEW YORK, Friday Evening, August 11, 1893.
Pig Iron Production.

Fuel used.	Week ending Aug. 11, 1892.		Aug. 11, 1893.		From Jan., '92.	From Jan., '93.
Anthracite.	74	32,000	64	28,860	1,123,699	1,068,394
Coke.	140	127,000	125	121,390	4,320,069	4,198,364
Charcoal	42	10,700	36	7,845	314,115	282,310
Totals	256	169,700	225	158,025	5,757,883	5,549,068

Pig Iron.—The iron market during the past week has undergone no change worthy of mention. The general conditions which prevail to-day are identical to those of a fortnight ago. It is possible that the dullness is even greater. There has been a marked decrease in the production of pig iron during the past month, but on the other hand the consumptive capacity of the country seems also to have decreased in almost an equal proportion. The prolonged financial uncertainty has affected the iron market to a considerable extent, and even when the demand grows to its normal proportions it will take the market several months to recover from the injuries inflicted upon it. Consumers everywhere are loath to purchase more supplies than are absolutely necessary.

Even when they realize that the present is a good time to buy at low prices, they find it difficult to raise the necessary funds. Large sales are the exceptions nowadays, and have been so for many months past. In regards to prices it is impossible to say just how low iron has been sold and is selling now. We hear of sellers who are offering their product at exceptionally low prices, but it is difficult to verify such reports. There is always some reason why such lots of iron are pressed for sale. Usually it is the need of funds, and the terms of the sale, if one is made, depend upon how urgently the seller requires the money.

Pig iron quotations at New York may be put about as follows for Northern brands: No. 1, $14.50@$15; No. 2, $13.50@$14; gray forge, $12.25@$12.50. For Southern iron we quote: No. 1, $13.75@$14.75; No. 2 F., $12.75@$13.50; No. 1 soft F., $12.25@$14; gray forge, $11.75@$12.50—all at tidewater. Scotch irons are quoted: Coltness, $21.50@$22; Eglinton, $19.50@$20; Summerlee, $20.

Billets and Rods.—We hear of no business in either billets or rods. We quote: Steel billets, tidewater, $23.50@$24.50; foreign, $28.50@$29; wire rods, $31.50@$32; foreign, $40@$40.50; Swedish, $52@$53.

Manufactured Iron and Steel.—There is nothing of interest to report of this market. There is a dearth of orders of any magnitude, and business is as quiet as it can be. Prices show little or no change from last week. We quote: Angles, 1·75@2c.; axles, scrap, 1·80@2·10c., delivered; steel, 1·75@2c.; bars, common, 1·45@1·60c.; refined, 1·65@1·9c. on dock; beams, up to 15 in., 1·80@2c.; 20 in., 2·10@2·30c.; car truck channels, 2@2·10c.; channels, 1·90@2c. on dock; steel hoops, 1·8@1·9c., delivered; links and pins, 1·85@2·10c.; plates, flange, 2@2·10c.; firebox, 2·5@2·8c.; flange, 2·10@2·25c.; marine, 2·50@2·75c.; sheared, 1·85@2·10c.; shell, 1·95@2·10c.; tank, 1·75@1·9)c.; universal mill, 1·75@1·90c.; tees, 1·95@$2·15c., all on dock.

Merchant Steel.—The market continues dull. Quotations are: Tool steel, 6·50@6·75c. and upward; tire steel, 2@2·10c.; toe calk, 2·20@2·30c.; Bessemer machinery, 2·10@2·20c.; Bessemer bars, 1·80@2c.; open hearth machinery, 2·20c.; open hearth carriage spring, 2·10@2·20c.; crucible spring, 3·75@4c.

Old Material.—There is nothing doing in this market. Quotations are nominally as follows: Old iron rails $15.50@$16; steel rails, $11.50@$13; car wheels, $11.50@$13.50.

Rail Fastenings.—The market for rail fastenings continues lifeless. Quotations remain: Fish and angle plates, 1·55@1·60c. at mill; spikes, 1·9@1·95c.; bolts and square nuts, 2·45@2·50c.; hexagonal nuts, 2·55@2·60c., delivered.

Spiegeleisen and Ferromanganese.—There is absolutely nothing doing in either ferro or spiegel. Quotations are nominally as follows: 10 to 12% Spiegel, $22@$22.50; 20% $25@$25 50. Ferro, $56@$57

Steel Rails.—No sales of steel rails are reported this market. The dullness which we have been reporting for some months past has grown daily and to-day the stringency in the money market and the general depreciation in the value of railroad securities makes mills more than ever conservative. Quotations are unchanged at $29 mill or tidewater. Girder rails, $31@$33.

Tubes and Pipe.—Business in tubes and pipes continues quiet. Ruling discounts on carload lots are as follows: Butt, black, 57½, 10 and 5%; butt galvanized, 50, 10 and 5%; lap, black, 67½, 10 and 5%; lap, galvanized, 57½, 10 and 5%.

Buffalo. August ?.

(Special Report of Rogers, Brown & Co.)

The depression which is now so familiar to everybody has settled with a firm grip upon the iron business in this region. Foundries have so generally shut down, curtailed production or decided not to enter into new obligations that the movement of pig iron has become practically nothing. Prices remain stationary for the double reason that they are down below the profit line for makers, and buyers are satisfied to pay the price asked if they have any use for the metal. We know of only one sale during the past month which had the appearance of laying in a large stock against future requirements. This was for Southern iron; and as the terms were immediate delivery and spot cash, the buyer secured "a snap."

The prices quoted below represent the nominal range of the market on the cash basis f. o. b. cars Buffalo. No. 1X foundry strong coke iron, Lake Superior ore, $13.75; No. 2X foundry strong coke iron, Lake Superior ore, $13.35; Ohio strong softener No. 1, $14; Ohio strong softener No. 2, $13.25; Jackson County silvery No. 1, $17@$17 30; Jackson County silvery No. 2, $16 30@$16.80; Lake Superior charcoal, $16; Tennessee charcoal, $16; Southern soft No. 1, $13.65; Alabama car wheel, $18; Hanging Rock charcoal, $20.50.

Chicago. August 12.

(From our Special Correspondent.)

The very best that can be said of the iron trade is that it is no worse, but it certainly is not one whit better. Taking a comprehensive view of the situation as a whole, there appears to be little prospect of anything like activity in the near future. Much of this belief is based upon the stringency of the money market, and the absolute refusal of manufacturers and the commercial public to do business on time paper. Neither brokers nor banks care to handle it, and until relief is afforded the metal trade will remain at a standstill. The Chicago Iron and Steel Company, operating the large rolling mills at East Chicago, Ind., made an assignment and shut down their works on the night of August 5th Refusal to extend some paper held by several parties caused the trouble, but as a majority of the stockholders are wealthy, arrangements are now being considered whereby they may be enabled to resume. In every branch and department of the iron trade a restrictive policy is in full force and production is being cut down at an unprecedented rate—ore, pig iron and finished iron and steel Not until next year can trade work back to its normal condition.

Pig Iron.—Local coke iron is without any new features, excepting that the car load trade is becoming more and more developed each week. Deliveries of iron on old contracts are only fair, as there are many requests to withhold shipments for a while. New business is confined to small quantities and quick delivery, and price is no inducement except to those requiring iron. Out of the large number of furnaces making Lake Superior charcoal iron there are only two or three in blast, whose product is marketed here, and these, we are told, will blow out as soon as raw material on hand is used up. Manufacturers say that a sufficient betterment in price must be assured to warrant a continuance. Demand is very light, and pressing needs only are filled by consumers. Southern coke iron is in better inquiry; several good sized orders have been placed—500 and 1,000 tons, with probably two pending aggregating 1,500 tons, though to say there was any activity would be misleading, as these were special requisitions and are no criterion of the market conditions, which are very discouraging.

Quotations per gross ton f. o. b. Chicago are: Lake Superior charcoal, $16.00@$16.50; Lake Superior coke, No. 1, $13.50@$13.75; No. 2, $12.75@$13.25; No. 3, $12.25@$12.50; Lake Superior Bessemer, $14.00; Lake Superior Scotch, $14.50@$15; American Scotch, $15.50@$16 00; Southern coke, foundry, No. 1, $14.00; No. 2, $12.35; No. 3, $12.00; Southern coke soft, No. 1, $12 50; No. 2, $12.00; Ohio silveries, No. 1, $16.50; No. 2, $16.00; Ohio strong softeners, No. 1, $16.25; No. 2, $16.00; Tennessee charcoal, No. 1, $17; No. 2, $16.50; Southern standard car wheel, $18.50@$18.75.

Structural Iron and Steel.—So little new business is offering that contractors having their own works are almost in despair. There is only a moderate tonnage of bridge plates moving. Quotations, car lots, f. o. b. Chicago, are as follows: Angles, $1.75@$1.85; tees, $1.95@$2.05; universal plates, $1.75@$1.85; sheared plates, 75c.@$1.85; beams and channels, $1.80@$1.90.

Plates.—Some inquiry is noted for fair sized amounts, but most of the orders are small and filled from warehouses. Boiler tubes are very weak. Steel sheets, 10 to 14, $2.25@$2.35; iron sheets, 10 to 14, $2.20@$2.30; tank steel, $1.90@$2; shell iron or steel, $2.50@$2.75; firebox steel, $4.25@$5.25; flange steel, $2.74@$3; boiler rivets, $4@$4.15; boiler tubes, all sizes, 65%.

Merchant Steel.—Business during the past few days has been extremely light as reported by mill agents and the outlook less encouraging for the immediate future. Steel is inactive. Quotations are: Tool steel, $6.50@$6.75 and upward; tire steel, $2@$2.10; toe calk, $2.30@$2.40. Bessemer machinery, $2.10@$2.20; Bessemer bars, $1.60@$1.70; open hearth machinery, $2.25@$2.30; open hearth carriage spring, $2.10@$2.20; crucible spring, $3.75@$4.

Galvanized Sheet Iron.—Last week warehouse trade was fairly good, several hundred bundles going into consumptive hands, but large buyers are taking minimum quantities only. Discounts are easy at 70, 10 and 5% off on Juniata and 70, 10 and 10% off on charcoal, and jobbing quantities at 70 and 7½% off on the former and 70 and 10% off on the latter.

Black Sheet Iron.—Deliveries on contracts placed early in the season are a feature, but there is no new business worthy of note. Prices are unchanged at 2·85c. for No. 27 common, and 2·90@2·95c. for steel. Jobbers quote 3c. for iron and 3·10@3·15c. for steel, same gauge.

Bar Iron.—Even contracts for seasons's requirements are scarce now, and demand is restricted to small quantities such as can be supplied from warehouses. Consumption requiring all new material has greatly decreased during the past two months. The East Chicago mill is believed to be temporarily embarrassed only. Regular quotations are 1·45c.@1·50c., base, 60 days, 2% for cash, to best buyers. Warehouse trade is only moderate at 1·65@1·75c. for iron and steel bars.

Nails.—Wire nails are in better demand from mill at $1.40. The pooling arrangement now in progress of formation will benefit the manufacturers. Jobbers quote $1.55 from stock. Steel cut nails are dull and liable to be for some weeks. Mill quotation is $1.20 and jobbing price $1.35.

Steel Rails.—There is no change to report. The steel mills here look for no improvement in the situation until there is a general revival in all branches of trade. Quotations are $30@$31. Mill orders for splice bars and other repair material are scarce—demand partakes of jobbing character.

Scrap.—Dealers report business at a standstill, and quotations nominal only. Railroad, $13.50; No. 1 forge, $12; No. 1 mill, $9.00; fish plates, $14.50; cast borings, $5.00; wrought turnings, $7.50; axle turnings, $9.25; machinery castings, $10; stove plates, $7.50; mixed steel, $9; coil steel, $15; leaf steel, $15; tires, $14.50.

Old Material.—There is an entire absence of inquiry and demand for iron rails, and $15.50 is nominal; building steel rails are very dull and lower at $9.25@$13 as to condition and length. Car wheels nominal at $14.

Philadelphia. August 10.

(From our Special Correspondent.)

Pig Iron.—Notwithstanding the very rapid decline in production of pig iron, there seems to be an utter indifference upon the part of buyers of both forge and foundry irons about placing orders or accepting offers of iron. Southern makers are offering stocks for future delivery here, but their best quotations are met by home producers. A good many mills are still idle, and will not resume until orders are secured. The mills at work have very little iron on hand, but there is no urgent demand for even the finer qualities of forge. The market is extremely dull, and it is impossible to gather any information or obtain expressions of opinion as to future probabilities. A few sales of foundry have been made at $15 for No. 1. About $13 is the average selling price for the small lots of mill iron that are called for.

Muck Bars.—Several millowners are now in the market canvassing for business and are trying to get $23 for what they say is superior bar. About $22.50 is the best figure offered by buyers.

Steel Billets.—The only point developed this week in steel billets is that two or three makers are shading their quotations of two weeks ago, on large orders now on the market. It is probable that these orders will be placed before Saturday, and the price named will probably be the accepted market price for the next month. Manufacturers have completed nearly all of their old orders, and the mills are now more nearly bare of orders than for months past.

Merchant Iron.—The resumption of work among the bar mills goes on very slowly, and some of our brokers here say it will be September 1st before there will be a general resumption; and that it may not be very general, even then. All of the business heard of is made up of trifling orders at about 1.60 for refined. It was rumored some days ago that some large car orders would be placed; but whether the car builders will buy now or later in the month will be determined by the willingness of mill men to accept orders at about cost prices.

Nails.—The building trades are very dull, and a great deal of building has been posponed indefinitely. The storekeepers have nails enough on hand for the present. The millowners have large stocks. Every maker knows there is nothing to be gained by cutting prices further, even were there room for it.

Sheet Iron.—Quite an influx of small orders for light sheets has been reported this week, and it is probable that some of the larger consumers will place their orders this month or early in September for winter consumption, as they believe that now is the time to fence in sheets. Some very exceptional figures have been named for large lots, and every one knows that a settlement of some questions now agitating the public mind would lead to a large demand under the influence of which the sheet manufacturers would advance prices.

Merchant Steel.—The only encouragement reported in the market for merchant steel is in the fact that buyers of crucible and tool steel have permitted stocks to become exhausted and are now inclined to make purchases to cover the rest of the year. If this rumor turns out to be true it will stimulate the demand and probably improve prices of all kinds of merchant steel.

Skelp Iron.—Although no large orders have been placed for skelp, enough is known regarding the contemplated construction of trolley lines and other enterprises into which skelp largely enters to justify the belief that there will soon be large orders placed, but not at improving prices, as buyers have options already secured for large quantities at current rates.

Plate and Tank.—The mills, with one or two exceptions, have barely enough work to run them from week to week. The large orders expected a month ago have been scared off on account of the general depression, and the best information which brokers can give is that there will be no large orders placed until there is a general quieting down in financial circles. It is impossible, therefore, to report much business.

Structural Material.—Virtually the same condition of things exists in all kinds of structural material, with the exception that, if confidence is restored, there will be some very large orders placed for work already entered upon. There is no change in quotations, but a rumor is current to-day that angles could be had in large lots at something under 1·75.

Steel Rails.—The steel rail makers are much disappointed over their failure to secure some of the business they had been led to expect. Quotations are continued at $29 for standard sections.

Old Rails.—Large quantities of old rails are now being offered by railroad companies who wish to pull them up and get them out of the way before cold weather; but the brokers who handle such stock do not care to buy at present.

Pittsburg. Aug. 11.

(From our Special Correspondent.)

Iron and Steel.—Although a sharp reduction has been made in iron production the demand has fallen off in even a greater degree and the situation is therefore unsettled and irregular. There is nothing in the present condition of the iron trade to give much encouragement to those who are looking for greater activity and higher prices. In nearly every branch of the trade conditions are unsatisfactory, the close competition for business among the various producers making the margin of profit on sales extremely narrow.

During the last few days the brighter outlook in financial matters leads producers to hope that the present period of uncertainty and distrust of the future may soon come to an end. What pressure there is to sell is chiefly of brands that are not so freely used by the heaviest consumers as to be classed as standards. Buyers are, however, disposed to look upon the conditions prevailing, especially in regard to prices, as likely to show but little change until fall, and are, therefore, not departing from the practice of purchasing such material as they actually require in small amounts.

Some pig iron manufacturers are pressing their output upon the market, but the entire absence of bids for large amounts renders their efforts of no avail. Stocks are said to be accumulating despite the numerous instances of shutting down reported, but prices have held up fairly well in the face of the

manifest disposition of producers to sell, and the reluctance of consumers to buy.

Coke Smelted Lake and Native Ores.

Tons.	Cash.
500 Bessemer, Aug	$13.00
500 Bessemer, Aug.	12.75
500 Bessemer, Aug.	1..50
300 Grey Forge.	12.00
250 Grey Forge	12.00
150 Bessemer, spot	1 .00
100 Off Bessemer.	12.25
100 No. 1 Foundry	13.75
100 No. 2 Foundry	12.75

Charcoal.

25 Cold Blast	26.50
25 Cold Blast, extra	28.00
25 No. 2 Foundry	18.50
25 Cold Blast	25.00

Billets and Slabs.

500 B., Aug., Sept., at works	21 00
500 B., at works	20.75
500 B. & S., Aug., at works	$21.00
500 B., prompt, at works	21.00

Sheet Bars.

250 S. B., at mill	26.50

Muck Bar.

300 N., Aug., Sept.	22.00

Scrap Material.

500 Heavy melting stock, next 4 mos. gross	12.75
250 Heavy melting stock, next 4 mos. gross	12.50
150 Yard scrap, No. 1, net	13.50
100 Yard scrap No. 2, net	12.75
100 Cast borings, gross.	8.00

COAL TRADE REVIEW.

NEW YORK, Friday Evening, August 11.

Statement of shipments of anthracite coal (approximated) for week ending August 5th, 1893, compared with the corresponding period last year:

	Aug. 5, 1893. Tons.	Aug. 6, 1892. Tons.	Difference.
Wyoming region	429,358	418,065	Inc. 11 293
Lehigh region	134,329	110,267	Inc. 34.062
Schuylkill region	206,724	215,269	Dec. 8,542
Totals	770,411	743,598	Inc. 26,813
Total for year to date	24,976,527	23,771,909	Inc. 1,204,618

PRODUCTION OF BITUMINOUS COAL for week ending August 5th and year from January 1st:

Shipped East and North:	1893. Week.	1893. Year.	1892. Year.
Phila. & Erie R. R.	1,052	53,173	52,303
Cumberland, Md.	84,050	2,411,504	2,168,175
Barclay, Pa.	457	35,218	116,047
Broad Top, Pa.	8,303	394,760	340,888
Clearfield, Pa.	68,578	2,462,955	2,352,382
Allegheny, Pa.	22,421	763.615	150.726
Beach Creek, Pa.	25,721	9-0,931	1,483.231
Pocahontas Flat Top	45,732	1,679,236	1,393,811
Kanawha, W. Va.	60,515	1,887,366	1,374.085
Total	317,159	10,618,758	8,035.648
Shipped West:	**1893. Week.**	**1893. Year.**	**1892 Year.**
Pittsburg, Pa.	20,982	767,366	765,975
Westmoreland, Pa.	33,511	1,158,798	986,969
Monongahela, Pa.	6,679	437,962	362,292
Totals	61,172	2,404.126	215,236
Grand totals	378,331	13,022,884	8,250,884

PRODUCTION OF COKE on line of Pennsylvania R. R. for the week ending August 5th, 1893, and year from January 1st, in tons of 2,000 lbs.: Week, 42,491 tons; year 3,039,474 tons; to corresponding date in 1892. 3,255,515 tons.

Anthracite.

So far as actual trading is concerned, nothing has occurred in the anthracite coal market since our last report to cause any modification of the comments we then made. The market is as quiet and dull as ever. New business is scarcer than the proverbial hens' teeth—much scarcer. The trade has become resigned to the dullness, and is quietly playing a waiting game. Indeed, it is forced to do so by circumstances over which it has no control, and which are chiefly due to the conditions prevailing in the money market and in the general business world. Little coal is moving now, although it is the opinion of competent observers that there is less coal above ground to-day than was the case at the same time last year. Notwithstanding this, the outlook is not bright.

The sensation of the week was furnished by the Lehigh Valley Railroad Company's action in withdrawing from the Reading system. The lease, which had existed between the Lehigh Valley Railroad and the Philadelphia & Reading Railroad companies since February, 1892, has been abrogated. The directors of the former company decided to bring about this change at a meeting which was held in Philadelphia on Tuesday last. In the petition to the Court, asking for a dissolution of the lease, it was said that the Lehigh Valley Railroad Company had made default in the payment due the Lehigh Valley Coal Company under the said agreement, and that the Lehigh Valley Coal Company has taken appropriate action for the termination of said agreement under the provisions thereof in regard to determination for default.

The petition of the Lehigh Valley Coal Company follows in its general lines that of the railroad company; the supplemental information contained in it is, however, that the Philadelphia & Reading Coal & Iron Company defaulted in its payment for the coal both in January and February last, and that on March 20th last there was due the Lehigh Valley Coal Company the sum of $968,763. It is stated also that promissory notes were given by the Reading Coal & Iron Company to the Lehigh Valley Coal Company for $500,000 of the amount so due and unpaid, but that all of the notes are long since overdue and none of them paid, so that the gross amount is owing to the company. The petitions were both granted by Judge Dallas, who also named Mr. John Lowber Welsh as receiver of the Philadelphia & Reading Railroad Company and of the Philadelphia & Reading Coal & Iron Company, vice Mr. E. P. Wilbur, resigned. Mr. Wilbur is the president of the Lehigh Valley Railroad Company.

There has naturally been considerable talk in the coal trade here as to the probable effect of the withdrawal of the Lehigh Valley from the Reading system. That there will be some competition there is no doubt. The "anthracite combine" has been broken and the restraint which it imposed upon independent operators as well as upon some of the heaviest producing companies is at an end. We hear that the Lehigh Valley is willing to take all the coal mined on its line. The operators, we are told, are asked to accept 55% of the tidewater price instead of 60%, as under the Reading. This the operators have declined. Those conditions which prevailed in the coal trade previous to the "combine" will again rule, aggravated by the existing financial troubles. August is always a dull month; it has been the dullest so far this year. It is absolutely impossible to sell any coal at figures anything like the "circular" prices. When the demand grows we shall see what producers will do to obtain their share of the business, and at what price. Already there are rumors that the Reading's policy will be an aggressive one. No information on this point is vouchsafed by the Reading officials. It is enough to say now, however, that a change of paramount moment has been wrought to the coal trade by the Lehigh Valley's action.

The Reading official circular rates, subject to the usual commissions, are as follows, f. o. b. at its New York harbor shipping ports:

	Broken.	Egg.	Stove.	Chestnut.
Hard white ash	$4.00	$4.25	$4.60	$4.60
Free white ash	3.90	4.15	4.60	4.60
Shamokin	....	4.50	4.80	4.60
Schuylkill red ash	....	4.50	4.95	4.75
Lykens Valley	5.00	5.80	6.20	4.45

Pea, $2.50@$2.75; No. 1 Buckwheat, $1.75@$2; No. 2 Buckwheat, $1.50.

The Reading Railroad system reports that its coal shipment (estimated for last week, ending August 5th, was 370,000 tons, of which 32,000 tons were sent to Port Richmond and 42,000 tons were sent to New York waters.

Bituminous.

The soft coal trade continues dull. There is practically nothing of importance doing in it. Were it not for the fact that ocean freights are extremely low the dullness would be felt to a still greater extent. As it is, vessel rates are getting very close to the lowest figures ever known, and this tempts consumers and jobbers to lay in not only their usual supply but an extra one as well. The old cry of mills closing down is still heard, but this does not always mean the cessation of shipments to them, with ocean freights so favorable to them. The effect of the low rates alluded to has been to throw nearly all the Sound business from the New York shipping ports to the lower ports, the cost alongside being so much more in favor of the latter.

Ocean freights are quoted as follows from Philadelphia, Baltimore, Newport News and Norfolk: To Boston, Salem, Portland, Portsmouth, Bath and Sound ports, 55c. and 60c.; Wareham, 80c,; Newburyport, 70c; Bangor, 60c. and 65c. For large vessels these rates can be, and have been during the week, shaded from 5c. to 10c. We hear of a 1,800-ton vessel chartering at Baltimore for Providence, at 52½c., and several charters from Philadelphia to Boston and Sound ports at 50c. On account of these low rates, several of the coasting vessels are tying up, and more contemplate doing so in the near future. If this continues, the market will have a chance to see higher rates. But at present, vessel property is not a profitable investment, and there will be little, if any, building of coal vessels this year.

The blockade on the Pennsylvania Railroad continues, and coal from some of the mines, which is not being shipped at shipping points as freely as it should, is backing up badly on the main line of the road, forcing the Pennsylvania Railroad to keep back-loaded coal on the lateral feeders. This state of affairs has grown worse during the past week, and, as we stated in our last issue, it now looks as if there would be a repetition of last year's troubles. Cars are in good supply from all roads. Shipments from New York have been reduced considerably.

Buffalo. August 9.

(From our Special Correspondent.)

There is an absence of any news of importance in the coal trade of Buffalo. The shipments by lake continue very light, and rates are nominally unchanged. Shippers do not look for any particular activity this month, but hope, when the financial situation improves, a good fall trade may result. Prices of anthracite and bituminous coal remain as for previous quotations. Stocks ample for all the requirements of the trade.

The following statistics show the coal trade of Buffalo thus far this season, with other particulars. Railroad receipts and shipments of coal are not published by request. Receipts of coal thus far this season by lake, none. Shipments of coal westward by lake for month of July, 254,070 net tons, as compared with 425,785 tons in 1892 and 311,500 tons in 1891; for season to August 1st, 1,187,129 net tons, as compared with 1,194,215 tons in 1892 and 1,144,250 tons in 1891. The receipts of coal by canal for month of July 12,277 net tons, as compared with 402 tons in 1892 and none in 1891; the shipments, 909 net tons, as compared with 1,893 tons in 1892 and 6,146 tons in 1891. The total receipts of coal for the season to August 1st, 25,672 net tons, as compared with 4,491 tons in 1892 and 481 tons in 1891. The total shipments, 9,739 net tons, as compared with 15,219 tons in 1892 and 16.849 tons in 1891. The aggregate shipment of coal westward by lake thus far this year as compared with 1892 shows a decrease of 7,086 net tons, and with 1891 an increase of 42,879 net tons. Freights on coal by lake during July this year were 50c. to Chicago, 45c. to Milwaukee, 30c. to Duluth and Lake Superior ports, 30c. to Toledo and Detroit, 55@50c. to Racine and 40c. to Green Bay and Saginaw. Last year (1892) the rates were 60c. to Chicago, Milwaukee and Green Bay; 35@30c. to Duluth and Lake Superior ports; 65c. to Sheboygan; 70@65c. to Racine; 40c. to Saginaw; 35c. to Bay City and 25c. to Toledo and Detroit. All per net ton free on and off.

Chicago. Aug. 10.

(From our Special Correspondent.)

Anthracite coal is without appreciable change in this market either as regards demand, wholesale or retail, or price. Referring to the latter, while some of the shippers are firmer in demanding July or June circular, others are quoting May prices, hence the irregularity for small as well as large lots of coal. The market is very dull and August will probably be as quiet as last month was, as there are no indications of a revival at this writing.

Country dealers have not bought their stocks of coal and will not until their customers are ready to buy. It is getting late in the season and this deference of business will bring them all into the market at about the same time. As a consequence of this postponement of orders, and should there be no greater demand during August, a large proportion of the hard coal required for late fall delivery must of necessity be all-rail. Taking the foregoing as a basis for argument, the question naturally arises, can this traffic be handled with sufficient facility to insure prompt delivery? Most of the shippers say it cannot, for the reason that soft as well as hard coal will be moving in the same direction, northwest, and the result will be congestion of traffic on all trunk lines. It would be advisable for all the country trade who can make satisfactory arrangements to lay in their supplies during August to do so, as the chances are that many will have to wait for their coal.

Receipts of anthracite via lake and rail are light. This is but the natural result of the dullness now so prominent a feature.

Circular prices are at the following rates: Lehigh lump, $6.25; large egg, $5 85; small egg, range and chestnut, $6.10. Retail prices per ton are: Large egg, $6.75; small egg, range and chestnut, $6.75.

Bituminous coal of all kinds is quiet, and at this writing, on account of the numerous countermands and requests to hold up on shipments, the market is glutted. As a natural consequence prices are sacrificed to avoid demurrage charges, and there is a good tonnage of soft coal being offered at low figures. As a further corollary, production at the mines in Indiana and Illinois has been reduced and few are making half-time, and many less than a third Pocahontas coal (W. Va.) is quietly but steadily gaining a foothold in this market, and wherever introduced satisfactory results, as to its excellent steam-producing qualities, have followed. Several fair-sized contracts have been placed in Wisconsin for this new fuel—new to this market. The two Dakotas, Minnesota and contiguous States, which largely obtain their coal supplies from upper lake ports, will unquestionably be short of soft coal when resuming deliveries commence. The dock companies at those ports, on account of the stress in money, have been unable to put in their usual tonnage by vessel, and a large share of it will have to be all-rail. Hocking is still in light demand and price easy.

Prices of bituminous per ton of 2,000 lbs., f. o. b. Chicago, are: Pittsburg, $3.35; Hocking Valley $3.10; Youghiogheny, $3 25; Illinois block, $2.60; Brazil block, $2.50.

Coke of all grades continues very dull, and the shading of regular prices does not stimulate demand.

Quotations are: $4.35 furnace; $4.65@$4.75 foundry, crushed; $5.10 Connellsville; West Virginia: $3.90 furnace, $4.10 foundry; New River Foundry, $4.50; Walston: $4.50 furnace, $4.60 foundry.

Pittsburg. Aug. 10.

(From our Special Correspondent.)

Coal.—Trade very dull; prospects for a rise very slim. As there are no empty craft, mines are nearly all idle, so to speak; the pools and the Pittsburg landings are all crowded with loaded boats, and they will remain so until we have a rise. All predictions so far have failed. The Ohio River is unusually dull from the head waters to Cairo; below Davis Island dam the stage is 16 in. However disagreeable the fact may be, the Pittsburg coal producers must face the certainty that in the future they are to have pushing, persistent, formidable competition along the Ohio River. It is a competition that has come to stay, that is not for sale and that intends to have its share of the business. The Pocahontas fields will reach Cincinnati by river and rail, and will go by boat to every market South along the Ohio and Mississippi. Railway shipments continue fairly active; prices unchanged.

Connellsville Coke.—Trade is exceedingly dull, with no improvement in sight. At the present rate of increase in the number of idle ovens the production of coke in the region will be reduced to a very limited amount. Ovens have been blown out by the thousand, wages have been reduced at all parts, hundreds of foreigners have packed up and left for their native lands, where it is hoped they will remain. Of the ovens owned and controlled by the

H. C. Frick Coke Company less than one-third are in active operation. During July, 1892, the shipments aggregated 22,772 cars; July, 1893, 17,959 cars; decrease, 4,813 cars. Week's shipments aggregated 74,784 tons, distributed as follows: To Pittsburg, 1,400 cars; to points East, 925 cars; to points West, 1,611 cars; total, 3,936 cars.

The prices of coke, Pittsburg delivery, per ton are: To furnaces, $2 30; foundry coke, $2.55; to consumers, $2.70; crushed, $2.90; to consumers, crushed, $3.05. For price at ovens deduct 70c. freight.

CHEMICALS AND MINERALS.

NEW YORK, Friday Evening, August 11.

Heavy Chemicals.—The heavy chemical market shows no change of consequence from last week. Its main features continue as we reported them in our last issue. With the existing financial difficulties it is not to be expected that there should be much business. Caustic soda is very quiet and shows no features of interest. Carbonated soda ash and alkali are lifeless. For bleaching powder there has been a better inquiry, but prices are unchanged. Prices are nominally quoted as follows: Caustic soda, 60%, 2·95@3·10c; 70%, 2 70@2·90c.; 74%, 4·72½@2·92½c.; 76%, 2·90@3·00c. Carbonated soda ash, 28%, 1·25@1·30c.; 58%, 1·15@1·25c.; Alkali, 48%, $1.15@$1.20.; 58%, $1.10@$1.20, according to package. Sal soda, English, to arrive, 0·95c.; American ·95@1c.; bleaching powder, 2·25@2 37½c.; we hear of small sales at lower figures than the above, but it is difficult to ascertain exact prices, or the conditions that influence the sales.

Acids.—A very fair business, when one considers the present unsettled times and the closing down of mills, is reported in the various acids. No especial feature has developed during the week and prices are unchanged. We quote as follows: Acids, per 100 lbs. in New York and vicinity, in lots of 50 carboys or more: Acetic, in barrels, $1.87½; in carboys, $2.25; muriatic, 18°, 90c.@$1.10; 20°, $1@$1.25; 22°, $1.10@$1.35; nitric, 40°, $4; 42°, $4.50@$4.75; sulphuric, 80c.@$1.15. Mixed acids, according to mixture, oxalic, $6.30@$6.50. Blue vitriol is quoted all the way from $3.50 to $3.75; glycerine for nitro-glycerine, 11½@12½c., according to quality and quantity.

Brimstone.—This market continues very dull. Prices, both for spot and to arrive, are: Best unmixed seconds, $18; thirds are quoted $1 less.

Fertilizing Chemicals.—This market has been very quiet during the past week. We hear of no sales of importance and only a business of an insignificant nature was done. Prices show no change, with the exception of sulphate of ammonia, gas liquor. Owing to strikes in England this article cannot be imported under $3.57½@$3.60, $3.25 is asked for goods on the spot, while $3.50 is asked for imports. Bone goods are held at $3@$3.05. Other quotations are as follows: Dried blood, $2.15@$2.25 per unit for high grade, and $2.10@$2.15 for low grade; azotine, $2.20@$2.30. Concentrated phosphate (30% available phosphoric acid), 75c. per unit. Acid phosphate, 13% to 15%, av. P_2O_5 @60c. per unit at seller's works in bulk. Dissolved boneblack, 17% to 18%. P_2O_5@82·5 to 85c. per unit in bulk. Double superphosphate, 40% and above, soluble and 5% av., say, total of 48%, av. P_2O_5 @85c. per unit in bags. Acidulated fish scrap, no stocks on hand; dried scrap is quoted at $25 f. o. b. fish factory. Tankage, high grade, $24 50@$25.50; low grade, $22@$23 Bone tankage, $23@$24; bone meal, $24@$25.50

The price of double manure salts as fixed by the syndicate is as follows: New York and Boston, $1.12; Philadelphia, $1.14½; Charleston and Savannah, $1.17 cwt., basis 48@50%, in 50 ton lots on foreign weights and analyses. Sulphate of potash, 90%-96%, basis 90%: New York and Boston, $2.07; Philadelphia, $2.09½; Charleston and Savannah, $2.127, sulphate of potash, 96-99%, basis 90%, is 4% higher.

Phosphates.—Quotations for high grade land rock, f. o b. Charleston are $4.50@$4.75. Freights are $2 25.

Muriate of Potash.—No business is reported in this market. The prices fixed by the syndicate for 1893 are as follows: New York or Boston, $1.78; Philadelphia, $1.80¼; Southern ports, $1.83. During the past week there were no arrivals.

Kainit.—Practically nothing is doing in kainit. Quotations for shipments previous to September are as follows: New York, Philadelphia and Boston, $8.75 for foreign, invoice weight and test, and $9 for actual weight; Charleston, Savannah and Wilmington, $9.50 for invoice weight and test, and $9.75 for actual weight. Shipments after September 1st, 25c. higher.

Nitrate of Soda.—There is nothing doing in the nitrate market. It continues quiet. The spot price is $1.70.

Liverpool. Aug. 2.

(Special Correspondence of Jos. P. Brunner & Co.)

As anticipated, the coal strike has commenced, and this appears likely to cause very great inconvenience to manufacturers generally. As regards heavy chemicals, the demand is so unsatisfactory at present that the coal crisis has not influenced prices in any way, with the one exception of chlorate of potash, to which we have referred previously. It is the general opinion that the strike may last for some time, and should this view turn out to be correct it will mean that a large number of works over the whole country will be stopped before long, should they be unable to get their supplies of fuel.

Soda ash is very quiet and it is difficult to make sales, the demand being very poor. Quotations vary considerably according to quantity, market and make, etc., and for Leblanc makes the nominal range is about as follows: Caustic Ash, 48%, £4 10s.@£5 per ton; 57 to 58%, £5 10s.@£5 15s. per ton. Carb. Ash 48%, £4 15s.@£5 per ton; 58%, £5 5s.@£5 15s. per ton net cash.

Ammonia Ash, 58%, is also dull and nominally quoted at £4 7s. 6d.@£4 10s. per ton, less 2½%. Retail parcels are obtainable at less money, but holders find it very difficult to do business.

Soda crystals are only in moderate request at £2 17s. 6d.@£3 per ton, less 5%.

Caustic soda is inactive and quotations are nominally unchanged, varying considerably, according to export market. We quote nearest spot range as follows: 60%, £8@£8 15s. per ton; 70%, £9@£9 15s. per ton; 74%, £10@£10 15s. per ton; 76%, £11 10s.@£11 15s. per ton, net cash. For parcels under 10 tons, 5s. per ton extra is charged.

Bleaching powder is not active, but at the same time prices are steady at £8 10s @£8 15s. net cash for hardwood packages. More demand would no doubt soon tell on this article, but at present the demand is somewhat slow.

Chlorate of potash is in rather an unsatisfactory position, as although very scarce and manufacturers are oversold, it is not easy to get orders. For prompt delivery 8¼d. is nominal quotation, but this no doubt could be shaded with orders firm in hand. The difficulty, however, is to get orders, as buyers hold aloof. We quote August delivery 8¼d @8¼d., and same range asked for September. For October-December we quote 7¾d.@7¾d. For all 1894 6¾d. is asked for all quarters except United States, for which 7d. is the nearest value. Bicarb. soda is scarce and firm at £6 15s. per ton, less 2½% for 1-cwt. kegs, with usual allowances for larger packages.

Sulphate of ammonia is very scarce on the spot and high prices are asked by holders, £13 12s. 6d.@£13 15s. per ton less 2½% being asked for good gray 24%, and £13 17. 6d.@£14 per ton less 2½% for 25%, all in double bags f. o b. here. Nitrate of soda is still very scarce on the spot, and £10 5s. per ton less 2½% is nearest value f. o. b. here for double bags, but for a later delivery this month a fair reduction will be accepted. Carbonate of Ammonia.—Lump 3¼d. per lb.; powdered, 3½d. per lb.; less 2½%.

CURRENT PRICES.

These quotations are for wholesale lots in New York unless otherwise specified.

Acid—Acetic, chem. pure .17@.19
Commercial, in bbls. and cbys. .01¾@.02
Carbonic, liquefied, ℔ lb. .18@.25
Chromic, chem pure, ℔ lb. 1.00
for batteries. .40
Hydrobromic, dilute, U. S. P. .25@.30
Hydrocyanic, U. S. P. 4@.50
Hydrofluoric .2 .@.30
Alcohol—95%, ℔ gall. $2.30@$2.40
Absolute $3.80
Ammoniated $2.80
Alum—Lump, ℔ cwt. $1.75@$1.85
Ground, ℔ cwt. $1.85@$1.90
Powdered, ℔ lb. .04½@.05
Lump ℔ ton, Liverpool £5
Aluminum Chloride—Pure, ℔ lb. $1.25
Amalgamating solution, ℔ lb. .60
Sulphate, ℔ cwt $1.90@$2.50
Ammonia—Sal., in bbl. lots, ℔ lb. .07½@.08
Carbonate, ℔ lb., English and German, 07½@.08
Muriate, white, in bbls., ℔ lb. .08¼
Aqua Ammonia—(in cbys) 8° ℔ lb. .03@.04
20°, ℔ lb. .04@.05
26°, ℔ lb. .04¾@.05
Antimony—Oxymur, ℔ lb. .04@.06
Regulus, ℔ lb. .10@.11¾
Argols—Red, powdered, ℔ lb. .1
Arsenic—White, powdered ℔ lb. .03@.03¾
Red ℔ lb. .065@.07
Yellow .08@.09
White at Plymouth, ℔ ton £12 2 6
Asbestos—Canadian, ℔ ton $50@$300
Italian, ℔ ton, c. i. f. L'pool £18@£60
Ashes—Pot, 1st sorts, ℔ lb. 4.75@5
Pearl .05¾@.06¼
Asphaltum—
Prime Cuban, ℔ lb. .04@.05
Hard Cuban, ℔ ton $28.00@$30.00
Trinidad, refined, ℔ ton $30.00@$35.00
Egyptian and Syrian, ℔ lb. .05@.07½
Californian, at mine, ℔ ton $12.00@$26.00
at San Francisco, ℔ ton, $15.00@$29.00
Barium—Carbonate, pure, ℔ lb. .45
Carbonate, commercial, ℔ lb. .05@.10
Chlorate, crystal, ℔ lb. .75
Chloride, commercial, ℔ lb. .05@.10
pure, ℔ lb. .16
Iodide, ℔ oz. .40
Nitrate, ℔ lb. .06¼@.07
Sulph., Am. prime white, ℔ ton $17.50@$19
Sulph., foreign, floated, ℔ ton $21@$24
Sulph., off color, ℔ ton $11.50@$15.00
Carb., lump, f. o. b. L'pool, ℔ ton £6
No. 1, Casks, Runcorn, " " £4 10 0
No. 2, bags, Runcorn, " " £3 15 0
Bauxite—℔ ton $10.00
Bichromate of Potash—Scotch, ℔ lb. .11@.12
American, ℔ lb. .11@.12
Bichromate of Soda—℔ lb. .09½@.10
Borax—Refined, ℔ lb., in car lots .08@.09
San Francisco .08@.08¼
Concentrated, in car lots .07¼@.08
Refined, Liverpool ℔ ton £2
Bromine—℔ lb. .25@.35
Cadmium Minion—℔ lb. $2.00
Cadmium Iodide—℔ lb. $5.50
Chalk—℔ ton $1.50@$2.25
Precipitated, ℔ lb. .04@.06
China Clay—English, ℔ ton .$13@$18.00
Domestic, ℔ ton $9@$11
Chlorine Water—℔ lb. .10
Chrome Yellow—℔ lb. .10@.25
Chrome Iron Ore—℔ ton, San Francisco $10.00
Chromalum—Pure, ℔ lb. .35@.40
Commercial, ℔ lb. .02½
Cobalt—Oxide, ℔ lb. $1.60@$1.70
Copper—Sulph. English Wks. ton £20@£21
Vitriol (blue), ordinary, ℔ lb. .03¾@.03¾
" extra .01½
Nitrate, ℔ lb. .40
Copperas—Common, ℔ 100 lbs. .85@.95
Best, ℔ 100 lbs. $1.35@$1.50
Liverpool, ℔ ton, in casks £2@£2 10s.
Corundum—Powdered, ℔ lb. .04½@.09
Flour, ℔ lb. .03
Cryolite—Pow., ℔ lb., bbl. lots .07@.08
Emery—Grain, ℔ lb. (℔ kg.) .04½@.05
Flour, ℔ lb. .02½@.04
Epsom Salt—℔ lb. .01@.01½
Feldspar—Ground, ℔ ton .$6.00@$10.00
Crude $2.00@$3.00
Fluorspar—Powdrd, No. 1, ℔ ton $20@$30
Lump, at mine $6@$8
French Chalk—
Fuller's Earth—Lump, ℔ ton, $16@$20
Glauber's Salt—in bbls., ℔ lb. .01@.01½
Glass—Ground, ℔ lb .09@.10
Gold—Chloride, pure, crystals, ℔ oz. $12.00
pure, 15 gr., c. v., ℔ doz. $5.40
liquid, 15 gr., g. s. v., ℔ doz. $5.50
Chloride and sodium, ℔ oz. $6.00
15 gr., c.v., ℔ doz. $2.75
Oxide, ℔ oz. $27.25
Gypsum—Calcined, ℔ bbl. $1.25@$1.50
Land Plaster
Iodine—Resublimed, ℔ oz. .30@ 33
Iridium—Oxide ℔ lb. $90
Iron—Nitrate, 40°, ℔ lb .01@.01½
47°, ℔ lb .02@.02½
Kaolin—*See China Clay.*
Kieserite—℔ ton $9@$10
Lead—Red, American, ℔ lb .06¾@.07½
White, American, in oil, ℔ lb. .06½@.07½
White, English, ℔ lb., in oil .08½@.08¾
Acetate, or sugar of, white .06@.06½
Granulated
Nitrate .09@.12
Lime Acetate—Am. Brown .90@.95
" Gray $1.75@$1.87½
Litharge—Powdered, ℔ lb. .05½@.07¼
English flake, ℔ lb. .06@.09½
Magnesite—Crude, ℔ ton of 1,015 kilos $14.75
Calcined, ℔ ton of 2,240 lbs. $22.00
Brick, ℔ ton of 2,240 lbs. $47.50
Manganese—Ore, per unit. .23@.28
Oxide, ground, ℔ lb .02½@.06¼
Mercuric Chloride—(*Corrosive Sublimate*) ℔ lb. .62@.64
Powdered, ℔ lb. .5
Marble Dust—℔ bbl. $1.25@$1.50
Metallic Paint—Brown ℔ ton. $20@$22
Red $20@$22
Mineral Wool—Ordinary slag .01½
Ordinary rock .02½
Ground, ℔ ton
Mica—In sheets according to size.
1st quality, ℔ lb. .25@$6.00
Naphtha—Black
Nitre Cake—℔ ton $10.00
Ochre—Rochelle, ℔ lb. .01¼@01¾
Washed Nat Oxf'rd, Lump, ℔ lb. .06½@.06½
Washed Nat Oxf'rd, Powder, ℔ lb. .07@.07½
Golden, ℔ lb. .03@.05
Domestic, ℔ ton $12@$20
Oils, Mineral—
Cylinder, light filtered, ℔ gal. .14@.16
Dark filtered, ℔ gal. .10@.15
Extra cold test, ℔ gal. .20@.24
Dark steam refined, ℔ gal. .07½@.12
Phosphorus—℔ lb. .5@.5
Precip., red, ℔ lb. .80@.85
white, ℔ lb. .85@.90
Platinic Chloride—Dry, ℔ oz $7
Plumbago—Ceylon, ℔ lb. .04@.0
American, ℔ lb. .05@.07
Potassium—Cyanide, ℔ lb., C. P. 67%, ℔ lb. .52 .40
mining .28@.3
Bromide, domestic, ℔ lb. .28@.32
Chlorate, English, ℔ lb. .18@.18¼
Chlorate, powdered, English, ℔ lb. .18½@.19
Carbonate, ℔ lb., by casks, 82% .04½@.05
Caustic, ℔ lb., pure slick .05½@.06
Iodide, ℔ lb. $2.58@$2.80
Nitrate, refined, ℔ lb. .06@.08
Bichromate, ℔ lb. .10@.11½
Yellow Prussiate, ℔ lb. .21½@.22½
Red Prussiate, ℔ lb. .39@.4
Pumice Stone—Select lumps, lb .03½@.12
Original cks., ℔ lb. .01½@.02
Powdered, pure, ℔ lb. .01½@.01¾
Pyrites—Non-cupreous, p. units. .12@.1
Quartz—Ground, ℔ ton $6.00@$10.00
Rotten Stone, Powdered, ℔ lb. .03½@.03
Lump, ℔ lb. .06@.07
Original cks, ℔ lb. .04½@.05½
Rubbing stone, ℔ lb. .03½@.04
Sal Ammoniac—lump, in bbls., ℔ lb. .80½
Salt—Liverpool, ground, ℔ sack .70
Domestic, fine, ℔ ton $7@$7.
Common, fine, ℔ ton $4.50@4.
Turk's Island, ℔ bush .26@.2
Salt Cake—℔ ton $10.00@$15.00
Saltpeter—Crude, ℔ lb. .03½@.04
Soapstone—Ground, ℔ ton $
Block and slab according to size.
Sodium—Prussiate, ℔ lb. .22@.24
Phosphate, ℔ lb. .04@.05
Stannate, ℔ lb. .06@.12
Tungstate, ℔ lb. .30@.35
Hyposulphite, ℔ cwt., in casks $1.70@$1.80
Strontium—Nitrate, ℔ lb. .03½@.05
Terra Alba—French, ℔ lb. .65@.80
English, ℔ lb. .65@.80
American, No. 1, ℔ lb. .60@.80
American, No. 2, ℔ lb. .40@.50
Sulphur—Roll, ℔ lb. .01½@.02¼
Flour, ℔ lb. .01¾@.02
Tin—Crystals, in kegs or bbls. .14@.15
feathered or flossed. .20
Muriate, single .07@.12
Double or strong, 54° B. .10@.15
Oxymur, or nitro .19
Zinc White—Am., Dry, ℔ lb. .04½@.05
Antwerp, Red Seal, ℔ lb. .06¼@.07
Paris, Red Seal, ℔ lb. .07½@.08
Muriate solution .06
Sulphate crystals, in bbls., ℔ lb. .03@.03¼

THE RARER METALS.

The prices given below are the prices in Germany, and are per gramme except where otherwise stated:

Arsenic (metallic), per kilo $0.25
Barium (ex amalgam) 2.12
" (per electrol.) 7.75
Bismuth (metallic), per kilo 6.25
Cadmium (metallic), " 2.75
Calcium (per electrol.) 5.25
Cerium (pulv.) 2.25
" (fusum in globulis) 5.50
Chromium (fus.) .40
" (cryst.) .75
Cobalt (metallic), per kilo 10.00
" (pure), per kilo 40.00
Didymium (pulv.) 5.50
Erbium-Yttrium (oxydat.) 10.00
Gallium (cryst.) 100.00
Germanium (fus.) 37.50
" (pulv.) 35.00
Glucinum (pulv.) 7.00
" (cryst) 10.75
Indium 5.00
Iridium (fusum) 1.25
Lanthanum (pulv.) 6.00
" (per electrol.) 11.00
Lithium (in glob.) 5.00
" (wire) 6.25
Magnesium (bars) .01½
" (wire) .02
" (pulv.) .01¾
Manganese (fusum) .25
Molybdenum (pulv.) .12½
Niobium (pulv.) 4.25
Osmium 1.00
Palladium (wire) 1.06
" (pulv.) 1.00
Potassium (metal), per kilo 27.50
Rhodium 1.63
Ruthenium 2.50
Rubidium 6.25
Selenium (cryst.) .50
" (precipitates) .62½
Sodium .06⅜
Strontium (per electrol.) 7.25
" (ex amalgam) 3.25
Tantalum 4.75
Tellurium (fusum) .50
" (precipitates) .22½
Thallium .03¾
Titanium 1.13
Tungsten (pure) .05
Uranium 1.00
Vanadium .00

NEW YORK MINING STOCK QUOTATIONS.

DIVIDEND-PAYING MINES.

Name and Location of Company.	Aug. 5. H.	Aug. 5. L.	Aug. 7. H.	Aug. 7. L.	Aug. 8. H.	Aug. 8. L.	Aug. 9. H.	Aug. 9. L.	Aug. 10. H.	Aug. 10. L.	Aug. 11. H.	Aug. 11. L.	Sales.
Adams, Colo.													
Alice, Mont.													
Amador, Cal.													
Atlantic, Mich.													
Belcher, Nev.													
Belle Isle, Nev.													
Bodie Cons., Cal.													
Bos. & Mont., Mont													
Breece, Colo.													
Bulwer, Cal.													
Caledonia, S. Dak.													
Catalpa, Colo.													
Chrysolite, Colo.													
Colorado Central, Colo.													
Commonwealth, Nev.													
Comstock T. bonds, Nev.													
" scrip., Nev.													
Cons. Cal. & Va., Nev.			1.85		1.45								300
Crown Point, Nev.													
Deadwood, Dak.													
Enterprise.													
Eureka, Cons., Nev.													
Father de Smet, Dak.													
Freeland, Colo.													
Gould & Curry, Nev.													
Grand Prize, Nev.													
Hale & Norcross, Nev.													
Homestake, Dak.													
Horn-Silver, Utah.													
Independence, Nev.													
Iron Hill, Dak.													
Iron Silver, Colo.													
Leadville Cons., Colo.					.13		.13						500
Little Chief, Colo.													
Martin White, Nev.													
Moulton, Mont.													
Mt. Diablo, Nev.													
Navajo, Nev.													
N. Belle Isle, Nev.													
Ontario, Utah.													
Ophir, Nev.			.40		.90		.80						500
Overman, Nev.													
Plymouth, Cal.													
Quicksilver, Pref., Cal.													
" Com., Cal.													
Quincy, Mich.													
Robinson Cons., Colo.													
Savage, Nev.							.45						200
Sierra Nevada, Nev.													
Silver Cord, Colo.													
Silver King, Ariz.													
Silver Min. of L. Valley													
Small Hopes, Colo.													
Standard Cons., Cal.													
Yellow Jacket, Nev.													

NON-DIVIDEND-PAYING MINES.

Name and Location of Company.	Aug. 5. H.	Aug. 5. L.	Aug. 7. H.	Aug. 7. L.	Aug. 8. H.	Aug. 8. L.	Aug. 9. H.	Aug. 9. L.	Aug. 10. H.	Aug. 10. L.	Aug. 11. H.	Aug. 11. L.	Sales
Alpha., Nev.													
Alta, Nev.													
American Flag, Colo.													
Andes, Cal.													
Astoria, Cal.													
Augusta, Ga.													
" bonds.													
Barcelona, Nev.													
Belmont, Cal.													
Best & Belcher, Nev.													
Bonanza King, Cal.													
Brunswick, Cal.													
Bullion, Nev.													
Butte & Bost., Mont.													
Castle Creek, Idaho.													
Challar.													
Comstock T., Nev.											.07		500
Con. Imperial, Nev.													
Con. Pacific, Cal.													
Crescent, Colo.													
Del Monte, Nev.													
El Cristo, Rep. of Col.													
Emmett, Colo													
Exchequer, Nev.													
Independence, Nev.													
Julia, Nev.													
Justice, Nev													
King & Pembroke													
Lacrosse, Colo.													
Lee Basin, Colo.													
Mexican, Nev.													
Minnesota Iron													
Monitor, Colo.													
Monte Cristo, Rep. of C.													
Nevada Queen, Nev.													
N. Standard, Cal.													
N. Commonwealth, Nev.													
Overman, Nev.													
Oriental & Miller, Nev.													
Phœnix Lead, Colo.													
Phœnix of Ariz.													
Potosi, Nev.											.75		50
Rappahannock, Va.													
S. Sebastian, S. Sal.													
Santiago.													
Scorpion, Nev.													
Seg. Belcher, Nev.													
Shoshone, Idaho.													
Silver Hill, Nev.													
Sullivan Con., Dak.													
Sutro Tunnel, Nev.													
Syndicate, Cal.													
Tornado Con., Nev.													
Union Cons., Nev.											.80		100
Utah. Nev.													

*Ex-dividend. †Dealt in at New York Stock Ex. Unlisted securities. ‡Assessment paid. §Assessment unpaid. Dividend shares sold, 1,500 Non-dividend shares sold, 650.
Total shares sold, 2,150

BOSTON MINING STOCK QUOTATIONS.

Name of Company.	Aug. 4.	Aug. 5.	Aug. 7.	Aug. 8.	Aug. 9.	Aug. 10.	Sales.
Atlantic, Mich.				8.00			250
Bodie, Cal.							
Bonanza Development.							
Bost. & Mont., Mont.	18.75 18.25	8 75 18.50	19.00 18.50	19 00	18.50 17.50	17.75 17 25	1,166
Breece, Colo.							
Calumet & Hecla, Mich.	260 252	260 255	260	260	260	260	144
Catalpa, Colo.	.10	.09					4,000
Central, Mich.							
Cœur d'Alene, Id.							
Con. Cal. & Va., Nev.							
Dunkin, Colo.							
Eureka, Nev.							
Franklin, Mich.					9.50 9.25	9.50 9 25	119
Honorine, Utah.							
Horn Silver, Utah.							
Kearsarge, Mich.							
Lake Superior, Iron.							
Little Pittsburg, Colo.							
Minnesota Iron, Minn.							
Napa, Cal.							
Ontario, Utah.							
Osceola, Mich.	23.00 22 25		23.00	22.00	23.00	23.00 22.50	280
Quincy, Mich.					100 95.25	95.00	47
Ridge, Mich.							
Sierra Nevada, Nev.							
Silver King, Ariz.							
Stormont, Utah.							
Tamarack, Mich.	125	128 127	130 128		130		81
Tecumseh, Mich.							

Name of Company.	Aug. 4.	Aug. 5.	Aug. 7.	Aug. 8.	Aug. 9.	Aug. 10.	Sales.
Alloues, Mich.							
Arnold, Mich.							
Aztec, Mich.							
Brunswick, Cal.							
Butte & Boston, Mont.	5.88 5.75	6 00	6.50 6.00	6 00		6.00	535
Centennial, Mich.		2.50				5.75	200
Colchis, N. Mex.							
Copper Falls, Mich.							
Crescent, Colo.							
Dana, Mich.							
Don Enrique, Mex.							
Geyser, Colo.							
Hanover, Mich.							
Humboldt, Mich.							
Hungarian, Mich.							
Huron, Mich.							
Mesnard, Mich.							
National, Mich.							
Native, Mich.							
Oriental & M., Nev.							
Phœnix, Ariz.							
Pontiac, Mich.							
Rappahannock, Va.							
Santa Fe, N. Mex.							
Shoshone, Idaho.							
South Side, Mich.							
Tamarack, Jr., Mich.						12 00	15
Washington, Mich.							
Wolverine, Mich.	1 00		1.13	1.00			550

Dividend shares sold, 6,078. Non-dividend shares sold, 1,300. Total shares sold, 7,378.

DIVIDEND-PAYING MINES.

	Name and Location of Company.	Capital Stock.	Shares No.	Shares Par	Assessments. Total levied.	Assessments. Date and amount of last	Dividends. Total paid.	Dividends. Date & amount of last.
1	Adams, s. L. C.	Colo..	$1,500,000	150,000	$10	*	$637,500	Jan.. 1892 .05
2	Alaska-Treadwell, g.	Alaska	5,000,000	200,000	25	*	1,500,000	April 1893 .25
3	Alice, s.	Mont.	10,000,000	400,000	25	*	975,000	Nov.. 1891 .06¼
4	Alma & Nelwood., s	Idaho	300,000	30,000	10	*	60,000	Jan: 1889 .50
5	Amador, G.	Cal.	1,250,000	250,000	5	*	31,250	Aug.. 1890 .12½
6	American, g.	Colo..	3,000,000	300,000	10	*	225,000	Mar.. 1892 .05
7	American Belle, s. g. c	Colo.	2,000,000	400,000	5	*	50,000	April 1891 .12½
8	Americ'n & Nettie, g. s	Colo..		300,000			175,000	Mar.. 1892 .05
9	Atlantic, c.	Mich.	1,000,000	40,000	25	280,000 April 1875	$1.00 700,000	Feb.. 1891 1.00
10	Argenta, s.	Nev..	10,000,000	100,000	100	335,000 July. 1889	.10 40,000	Feb.. 1880 .20
11	Argyle, g.	Colo..	1,000,000	1,000,000	1	*	20,000	Mar. 1892 .01
12	Aspen Mg. & S., s. L.	Colo..	2,000,000	200,000	10		750,000	June 1893 .10
13	Aurora, L.	Mich..	2,500,000	100,000	25		650,000	Feb.. 1893 2.00
14	Badger, s.	Ont..	250,000	50,000	5		37,500	Mar.. 1890 .25
15	Bald Butte	Mont.	250,000	250,000	1	*	110,000	July. 1893 .02
16	Bates Hunter, s. g.	Colo..	1,000,000	1,000,000	1			Dec.. 1891 .00¾
17	Belle Isle, s.	Nev..	10,000,000	100,000	100	220 00 Aug. 1892	.10 300,000	Dec.. 1879 .25
18	Belcher, s. G.	Nev..	10,400,000	104,000	100	3,16 000 May 1892	.25 15,397,000	April 1876 1.00
19	Bellevue, Idaho, s. L.	Idaho	1,250,000	125,000	10	1: 000 Dec.. 1889	.25 200,000	Jan.. 1890 .10
20	Best Friend.	Colo.	1,000,000	1,000,000	1		90,000	Feb.. 1892 .01
21	Bi-Metallic, s. G.	Mont.	5,000,000	200,000	25		2,300,000	April 1893 .20
22	Bodie Con., G. I.	Cal..	10,000,000	100,000	100	5: 0,000 June 1890	.25 1,602,572	April 1885 .50
23	Boston & Mont., G.	Mont.	2,500,000	250,000	10	*	520,000	June 1886 .15
24	Boston & Mont., C. &	Mont.	3,125,000	125,000	25	*	2,075,000	Nov.. 1891 1.00
25	Brooklyn Lead, L. s.	Utah.	500,000	50,000	10		127,000	July. 1887 .05
26	Brotherton, I.	Mich.	2,000,000	80,000	25	*	120,000	Mar.. 1893 .50
27	Bulwer, G.	Cal..	10,000,000	100,000	10	130,000 Aug.. 1889	.25 190,000	Oct.. 1892 .05⅜
28	Bunker Hill & S. s. L.	Idaho	3,000,000	300,000	10	*	150,000	Oct.. 1888 .06
29	Caledonia, G.	Dak..	10,000,000	100,000	100	505,000 May. 1885	.15 192,000	Oct.. 1890 .08½
30	Calliope, s.	Colo..	1,000,000	1,000,000			140,000	Jan.. 1891 .00
31	Calumet & Hecla c.	Mich..	2,500,000	100,000	25	1,200,000	39,350,000	May. 1893 5 00
32	Centen'l-Eureka, s. L.	Utah.	1,500,000	30,000	50		675,000	June 1893 .50
33	Central, C.	Mich..	500,000	20,000	25	100,000 Oct.. 1861	.65 1,910,300	Feb.. 1891 1.00
34	Champion, G.	Cali..	340,000	34,000	10	*	132,900	May.. 1893 .10
35	Chrysolite, s. L.	Colo..	10,000,000	200,000	50	*	1,650,000	Dec.. 1884 .25
36	Clay County, G.	Colo..	200,000	200,000	1	*	56,000	Nov.. 1891 .02
37	Clinton Con, g.	Cal..	5,000,000	100,000	5		90,000	Nov.. 1891 .10
38	Cœur D'Alene, s. L.	Idaho	5,000,000	500,000	10		310,000	Nov.. 1891 .02
39	Colorado Central, s. L.	Colo..	2,750,000	275,000	10	*	530,000	April 1893 .05
40	Commonwealth, s.	Nev..	10,000,000	100,000	100	190,000 Sept. 1892	.10 20,000	Nov.. 1890 .20
41	Confidence, s. L.	Nev..	2,496,000	24,960	100	1,589,550 Aug.. 1892	.50 199,680	April 1889 1.00
42	Cons. Cal. & Va., s. g	Nev..	21,600,000	216,000	100	108,000 Jan.. 1885	.20 3,682,800	Aug. 1891 .50
43	Contention, s.	Ariz..	12,500,000	250,000	50		2,637,500	Aug. 1892 .20
44	Cook's Peak, s.	N. M..	2,000,000	200,000	10		114,532	Nov. 1892 .05
45	Cop. Queen Con., C.	Ariz..	2,000,000	200,000	10		1,460,000	May. 1893 .50
46	Coptis.	Nev..	10,000,000	100,000	100		67,000	July. 1892 .12
47	Cortez, s.	Nev.	1,500,000	300,000	05	*	687,000	Mar.. 1894 .50
48	Crescent, s. L. G.	Utah.	15,000,000	600,000	25	60,000 Oct. 1892	.10 238,000	Oct.. 1888 .03
49	Crown Point, G. s.	Nev..	10,000,000	100,000	100	2,700,000 Sept. 1892	.25 11,898,000	Jan.. 1875 2.00
50	Cumberland, L. s.	Mont.	5,000,000	500,000	10	*	15,000	Nov. 1889 .03
51	Daly, s. L.	Utah.	3,000,000	150,000	20		2,800,000	June 1893 .25
52	Deer Creek, s. G.	Idaho	1,000,000	200,000	5	*	20,000	June 1889 .05
53	Deadwood-Terra, G.	Dak..	5,000,000	200,000	25	*	1,150,000	Oct.. 1892 .05
54	DeLamar, s. G.	Idaho	2,000,000	400,000	5		800,000	April 1893 .37½

NON-DIVIDEND-PAYING MINES.

	Name and Location of Company.	Capital Stock.	Shares No.	Shares Par	Assessments. Total levied.	Assessments. Date and am't of last.
1	Alliance, s. G.	Utah.	$100,000	100,000	$1	$120,000 Feb.. 1891 .20
2	Allouez, C.	Mich.	2,000,000	80,000	25	737,000 Jan.. 1890 .70
3	Alpha Con., G. s.	Nev..	3,000,000	30,000	100	209.000 Sept. 1892 .10
4	Alta, s.	Nev..	10,080,000	100,800	100	3,369,880 Jan. 1892 .10
5	American. C.	Idaho	5,000,000	500,000	100	
6	American Flag, s.	Colo..	1,250,000	125,000	1	300,000 June 1887
7	Amity, s.	Colo..	250,000	250,000	20	
8	Anchor, s. L. G.	Utah.	3,000,000	150,000	5	410,000 June 1890 .20
9	Anglo-Montana, Lt.	Mont.	600,000	120,000	125	
10	Appalachian, g.	N. C.	1,750,000	1,400,000	20	
11	Arizona, C.	Ariz..	3,575,000	160,000	2	
12	Astoria, G.	Cal..	200,000	100,000	5	
13	Atlanta, g. s.	Idaho	3,250,000	650,000	25	
14	Barcelona, G.	Nev..	5,000,000	200,000	5	*
15	Bear Creek	Idaho		20,000	1	
16	Belmont, G.	Cal..		500,000	100	*
17	Belmont, s.	Nev.	5,000,000	50,000	100	735,000 April 1886 .10
18	Best & Belcher, s. G.	Nev..	10,080,000	100,800	10	2,405,275 Aug.. 1892 .25
19	Black Oak, G.	Cal..	3,000,000	300,000	100	*
20	Boston Con., G.	Cal..	10,000,000	100,000	1	170,000 Nov.. 1883 .25
21	Brownlow, G.	Colo..	250,000	250,000	5	
22	Brunswick, G.	Cal..	2,000,000	400,000	2	
23	Buckeye, s. L.	Mont.	1,000,000	500,000	100	
24	Bullion, s. G.	Nev.	10,000,000	100,000	100	2,890,000 Aug. 1892 .25
25	Burlington, g. s.	Cal..	10,000,000	100,000		
26	Butte & Boston, C. s.	Mont.	5,000,000	200,000	10	
27	Butte Queen, G.	Cal..	1,000,000	100,000	1	6,000 Jan.. 1892 .04
28	Calaveras, G.	Cal..	500,000	500,000	5	
29	Calaveras Con., g.	Cal..	800,000	160,000	10	
30	California, G.	Cal..	1,000,000	100,000	5	9,000 Mar.. 1892 .03
31	California Con. I. Q.	Cal..	2,250,000	450,000	10	
32	Camille, g.	Ga.	1,500,000	150,000	5	
33	Carisa, G.	Wy..	500,000	100,000	2	*
34	Carupano, G. S. L. C.	Ven..	200,000	100,000	2	*
35	Cashier, G. s.	Colo..	500,000	250,000	100	*
36	Challenge Con., g. s.	Nev..	5,000,000	50,000	10	
37	Cherokee, G.	Cal..	1,500,000	150,000	100	
38	Chollar, s. G.	Nev	11,200,000	112,000	2	1,820,000 May.. 1892 .50
39	Cleveland, T.	Dak..	1,000,000	500,000	10	*
40	Colchis, G.	N. M.	500,000	150,000	5	
41	Colorado, s.	Colo..	1,625,000	325,000	1	
42	Comstock, s.	Utah.	1,250,000	250,000	100	
43	Comstock Tun.	Nev.	10,000,000	100,000	100	35,000 Mar. 1887 .15
44	Con. Imperial, G. s.	Nev..	5,000,000	50,000	50	2,062,500 Jan.. 1892 .25
45	Con. New York, s. G.	Nev..	5,000,000	100,000	100	110,000 Mar.. 1892 .10
46	Con. Pacific, G.	Cal..	6,000,000	60,000	10	198,000 June 1890 10
47	Con. Silver, s.	Mo..	2,500,000	250,000	5	
48	Cordova Union, g.	Cal..	1,000,000	200,000	10	
49	Crescent, s. L.	Colo.	3,000,000	300,000	100	*
50	Crocker, s.	Ariz..	10,000,000	100,000	1	165,000 Aug. 1892 .05
51	Crowell, G.	N. C..	500,000	500,000	1	
52	Dahlonega, G.	Ga..	250,000	250,000	10	*
53	Dandy, s.	Colo.	5,000,000	500,000		
54	Decatur s.	Colo.	1,500,000	300,000		

DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Par	Assessments. Total Levied	Date and amount of last			Dividends. Total paid.	Date & amount of last.		
55	Derbee B. Grav., G...	Cal.	1,000,00	100,000	0	100,000	Sept.	1892	.10	60,..	Aug..	1892	.10
56	Dexter, g. s.....	Nev..	1,000,000	100,000	10	.....	.....	.....	.....	80,000	Aug..	1892	.25
57	Dunkin, s. L...	Colo..	5,000,000	200,.00	25	*	.....	.....	.....	890,000	Oct..	1889	.05
58	Elkhorn, s. L...	Mont.	1,000,000	200 00	5	*	.....	.....	.....	1,038,67.	June	1893	37½
59	Enterprise, s.	Colo..	2,500,000	50,000	5	*	.....	.....	.....	850,000	May.	1893	.05
60	Eureka Con., s. L.. G.	Nev...	1,000,000	50,000	100	550,000	June	1889	.50	5,017,500	Jan.	1892	.25
61	Evening Star, s. L....	Colo..	500,000	50,000	10	.....	.....	.....	.....	1,450,000	Dec.	1889	.2
62	Father de Smet, G...	Dak..	10,000,000	100,000	100	200,000	Nov..	1878	1.00	1,125,000	Dec..	1885	.20
63	Franklin, c..	Mich..	1,000,000	40,000	25	220,000	June	1871	.....	1,106,000	July	1892	2.00
64	Freeland, s. G.....	Colo..	5,000,000	200,000	25	*	.....	.....	.....	190,000	July.	1886	.10
65	Garfield Lt., G. S....	Nev ..	500,000	100,000	5	.....	.....	.....	.....	90,000	April	1888	.12½
66	Glengarry	Mont.	1,000,000	100,000	10	.....	.....	.....	.....	10,000	June	1891	.10
67	Gold Rock.....	Colo..	500,000	500,000	1	.....	.....	.....	.....	.....	Dec.	1891	.01
68	Golden Reward. . .	S.Dak	1,250,000	250,000	5	.....	.....	.....	.....	85,000	April	1893	.02
69	Gould & Curry, s. G.	Nev...	10,800,000	108,000	100	4,591,200	June	1892	.25	3,826,800	Oct..	1870	10.00
70	Grand Prize, s.....	Nev...	10,000,000	100,000	100	785,000	Jan..	1890	.30	495,000	Mar.	1884	.25
71	Granite, s. L.....	Idaho	500,000	500,000	1	*	.....	.....	.....	83,400	Nov..	1890	.02
72	Granite Mountain, s.	Mont.	10,000,000	400,000	25	.....	.....	.....	.....	12,120,000	July.	1892	.20
73	Great Western, L. Q..	Cal...	5,000,000	50,000	100	.....	.....	.....	.....	444,861	May.	1893	.25
74	Green Mountain, g..	Cal...	1,250,000	125,000	10	*	.....	.....	.....	212,000	Nov.	1881	.07½
75	Hale & Norcross, G. S.	Nev...	11,200,000	112,000	100	5,534,800	Aug.	1892	.50	1,822,000	Aug.	1888	.50
76	Hecla Con., s. G. L. C.	Mont.	1,500,000	90,000	50	.....	.....	.....	.....	1,980,000	Apr.	1893	.50
77	Hel'a Mg.& Red, s.L.G.	Mont.	3,315,000	663,000	5	*	.....	.....	.....	197,970	July.	1886	.06
78	Helena & Frisco, s.L.	Idaho	2,500,000	500,000	5	.....	.....	.....	.....	170,000	July.	891	.02
79	Helena & Victor....	Mont.	1,000,000	200,000	5	.....	.....	.....	.....	80,000	May.	1892	.05
80	***Holmes, s.....	Nev...	10,000,000	100,000	100	370,000	May.	1890	.25	75,000	Apr.	1886	.25
81	Homestake, G.....	Dak..	12,500,000	125,000	100	200,000	July.	1878	1.00	5,003,750	June	1893	.10
82	Honorine, s. L.....	Utah.	500,000	250,000	2	37,500	April	1889	.05	125,00	Sep.	1887	.05
83	Hope, s.....	Mont.	1,000,000	100,000	10	*	.....	.....	.....	483,252	July.	1893	.25
84	Horn-Silver, s. L.....	Utah.	10,000,000	400,000	25	*	.....	.....	.....	4,700,000	Mar.	1893	.12½
85	Hubert, G.....	Colo..	1,000,000	1,000,000	1	*	.....	.....	.....	247,000	Dec.	1889	.00½
86	Idaho, G.....	Cal...	310,000	3,100	100	*	.....	.....	.....	5,450,250	April	1893	2.50
87	Illinois, s.....	N. M..	100,000	100,000	1	.....	.....	.....	.....	45,000	April	1889	.20
88	Iron Hill, s.....	Dak..	2,500,000	250,000	10	134,000	July.	1889	.03	156,250	Nov.	1887	.07½
89	Iron Mountain, s....	Mont.	5,000,000	500,000	10	*	.....	.....	.....	245,000	July.	1893	.08
90	Iron-Silver, s. L.....	Colo..	10,000,000	500,000	20	*	.....	.....	.....	2,500,000	April	1889	.20
91	Jack Rabbit, G.....	Cal...	10,000,000	100,000	100	100,000	Sept.	1892	.10	260,000	Aug.	1891	.10
92	Jackson, G. S..... ...	Nev..	5,000,000	50,000	100	237,500	Nov..	1880	.20	60,000	Jan.	1891	.10
93	Kearsarge, C.....	Mich..	1,000,000	40,000	25	190,000	Oct..	1887	1.00	80,000	Jan.	1890	2.00
94	Kennedy	Cal...	10,000,000	100,000	100	.....	.....	.....	.....	387,000	May..	1892	.15
95	Kentuck, s. G.....	Nev..	3,000,000	30,000	100	454,180	Oct..	1891	.15	1,350,000	Dec.	1886	.10
96	La Plata, s. L..... ...	Colo..	2,000,000	200,000	10	*	.....	.....	.....	610,000	Sept.	1882	.30
97	Leadville Con., s. L...	Colo..	4,000,000	400,000	10	*	.....	.....	.....	316,500	Feb..	1892	.03
98	Lexington, G. S..	Mont.	4,000,000	40,000	100	*	.....	.....	.....	609,000	Jan..	1890	2.00
99	Little Chief, s. L....	Colo.	10,000,000	200,000	50	.....	.....	.....	.....	820,000	Dec..	1890	.05
100	Little Rule, s.....	Colo..	500,000	500,000	1	.....	.....	.....	.....	220,000	Dec..	1891	.02
101	Maid of Erin.....	Colo..	3,000,000	600,000	5	.....	.....	.....	.....	708,500	April	1893	.25
102	Mammoth, s. L. C....	Utah	10,000,000	400,000	250	110,000	.....	1882	.25	1,040,000	Dec...	1891	.10
103	Martin White, s.....	Nev.	10,000,000	100,000	100	1,275,000	Jan..	1892	.25	140,000	Dec..	1886	.25
104	Mary Murphy, s. G...	Colo.	350,000	3,500	101	*	.....	.....	.....	175,000	May..	1893	5.00
105	Matchless, s. L.....	Colo..	500,000	500,000	1	*	.....	.....	.....	15,000	Feb...	1890	.00½
106	Maxfield	Utah	3,000,000	300,000	10	.....	.....	.....	.....	117,000	April	1892	.03
107	Mayflower, D. gravel	Cal...	1,000,000	100,000	10	.....	.....	.....	.....	160,000	July	1893	.10
108	May Mazeppa, s. L....	Colo..	1,000,000	100,000	1	.....	.....	.....	.....	205,000	Oct..	1891	.03½
109	Mina Prietas, G. S...	Mex..	1,000,000	100,000	10	*	.....	.....	.....	350,000	Dec...	1890	.50
110	Minnesota, C.....	Mich..	1,000,000	40,000	25	420,000	April	1886	1.00	1,820,000	Mar..	1876	.....
111	Mollie Gibson, s.....	Colo..	5,000,000	1,000,000	5	.....	.....	.....	.....	3,680,000	July..	1893	.08
112	Monitor, G.....	S.Dak	2,500,000	250,000	10	.....	.....	.....	.....	45,000	Oct..	1890	.03
113	Mono, G.....	Cal...	5,000,000	50,000	100	760,000	Sept.	1890	.25	12,500	Mar.	1886	.25
114	Montana, Lt., G. S....	Mont.	3,300,000	660,000	5	*	.....	.....	.....	2,619,075	June.	1891	12½
115	Morning Star, s. L....	Colo..	1,000,000	100,000	10	.....	.....	.....	.....	925,000	April	1891	.25
116	Morning Star Drift, G	Cal...	240,000	2,400	100	.....	.....	.....	.....	140,800	April	1893	3.00
117	Moulton, s. G.....	Mont.	2,000,000	400,000	5	*	.....	.....	.....	410,000	Nov.	1892	.07½
118	Mt. Diablo, s.....	Nev..	5,000,000	50,000	100	137,500	June	1880	2.00	210,000	July.	1891	.20
119	Napa, Q.....	Cal...	700,000	100,000	7	.....	.....	.....	.....	580,000	July	1893	.20
120	Navajo, G. S..... ...	Nev...	10,000,000	100,000	100	520,000	May.	1891	20	229,950	April	1889	.10
121	Newton.....	Cal...	10,000,000	100,000	100	*	.....	.....	.....	10,00.	May..	1891	.05
122	New California, G....	Colo..	800,000	160,000	5	.....	.....	.....	.....	48,800	May..	1890	.12½
123	New Guston, s.....	Colo..	550,000	110,000	5	.....	.....	.....	.....	1,877,500	April	1892	.75
124	North Banner Con..	Cal...	1,000,000	100,000	10	.....	.....	.....	.....	20,000	July..	1891	.05
125	North Commonw'th	Nev,,	10,000,000	100,000	10	.....	.....	.....	.....	25,000	June.	1891	.25
126	N. Hoover Hill, G. S..	N. C'.	300,000	120,000	2½	*	.....	.....	.....	30,000	Dec..	1885	.06½
127	North Belle Isle, s...	Nev..	10,000,000	100,000	100	474,689	Nov.	1892	.10	230,000	May .	1888	.50
128	North Star, G.....	Cal..	1,000,000	100,000	10	.....	.....	.....	.....	450,000	June	1893	.50
129	Omaha Cons., G.....	Cal...	2,400,000	24,000	100	.....	.....	.....	.....	30,000	May..	1892	.15
130	Ontario, s. L.....	Utah	15,000,000	150,000	100	.....	.....	.....	.....	13,175,000	Oct..	1892	.50
131	Ophir, G. S.....	Nev..	10,000,000	100,000	100	4,210,640	April	1890	.50	1,595,800	Jan..	1880	1.00
132	Original, s. C.....	Mont.	1,500,000	60,000	25	*	.....	.....	.....	138,000	Jan..	1889	.05
133	Oro, S. L. G.....	Colo..	500,000	100,000	5	.....	.....	.....	.....	95,000	July	1890	.20
134	Osceola, C..	Mich..	1,250,000	50,000	25	480,000	April	1876	1.60	1,747,500	May.	1893	1.00
135	Pacific Coast, s.....	Cal...	1,500,000	15,000	100	.....	.....	.....	.....	360,000	Dec.	1892	1.00
136	Parrot, C.....	Mont.	1,800,000	180,000	10	.....	.....	.....	.....	1,748,000	April	1893	.10
137	Petro.....	Utah.	10,000,000	10,000	100	.....	.....	.....	.....	17,500	July	1891	.75
138	Plumas Eureka, G....	Cal...	1,406,250	140,625	10	.....	.....	.....	.....	2,669,926	April	1893	.10
139	Plymouth Con , G....	Cal...	5,000,000	100,000	50	*	.....	.....	.....	2,250,000	Feb.	1888	.40
140	Poorman, G. S.....	Idaho	375,000	300,000	125	*	.....	.....	.....	68,280	Septl	1892	.....
141	Quicksilver, pref. Q	Cal...	4,300,000	43,000	100	.....	.....	.....	.....	1,823,911	June	1891	1.25
142	" com., Q	Cal...	5,700,000	57,000	100	.....	.....	.....	.....	643,867	July.	1882	.40
143	Quincy, C.....	Mich..	1,250,000	50,000	25	200,000	Dec..	1862	.....	6,620,000	Aug..	1893	3.00
144	Red Cloud.....	Idaho	1,000,000	200,000	5	.....	.....	.....	.....	153,000	Dec.	1892	.10
145	Reed National, s. G..	Colo..	500,000	500,000	1	*	.....	.....	.....	50,000	Dec..	1890	.01
146	Retriever, L.....	S.Dak	1,250,000	250,000	5	.....	.....	.....	.....	20,000	Aug..	1891	.03
147	Rialto, G.....	Colo..	300,000	300,000	1	*	.....	.....	.....	50,250	April	1892	.01½
148	Richmond, s. L.....	Nev..	1,350,000	54,000	25	*	.....	.....	.....	4,346,325	Aug..	1891	.25
149	Rico-Aspen.....	Colo..	5,000,000	1,000,000	5	.....	.....	.....	.....	25,000	May.	1895	.02½
150	Ridge, C.....	Mich..	500,000	20,000	25	219,939	Mar.	1886	.50	99,585	Feb..	1880	.50
151	Robinson Con., s. L..	Colo..	10,000,000	200,000	50	*	.....	.....	.....	585,000	Mar.	1886	.05
152	Running Lode, G....	Colo..	1,000,000	1,000,000	1	*	.....	.....	.....	36,000	May .	1892	.00 1-10
153	Savage, s.....	Nev..	11,200,000	112,000	100	6,772,000	Feb..	1892	.50	4,460,000	June	1869	3.00
54	Sheridan, s. G.....	Colo..	300,000	3,000	100	*	.....	.....	.....	300,000	Oct..	1891	2.50
55	Shoshone, G.....	Idaho	150,000	150,000	1	.....	.....	.....	.....	7,500	April	1883	.01
156	Sierra Buttes, G.....	Cal...	2,225,000	122,500	10	.....	.....	.....	.....	1,544,620	April	1893	.12½
157	Sierra Nevada, s. G..	Nev..	10,000,000	100,000	100	6,411,910	June	1892	.25	102,000	Jan..	1871	1.00
158	Sierra Nevada, s. L..	Idaho	1,000,000	1,000,000	1	*	.....	.....	.....	40,000	May..	1889	.02
159	Silent Friend..... ...	Colo..	500,000	500,000	1	.....	.....	.....	.....	60,000	Aug..	1891	.02½
160	Silver Cord, s. L. G...	Colo..	4,500,000	450,000	10	.....	.....	.....	.....	265,000	April	1889	.10
161	Silver King, s.....	Colo..	10,000,000	100,000	100	130,000	Nov.	1890	.30	1,950,000	July	1887	.25
162	Silver Mg. of L. V., s.L.	N. M..	500,009	500,000	1	.....	.....	.....	.....	300,000	Dec..	1891	4.05
163	Slide.....	Colo.	500,000	5,000	100	.....	.....	.....	.....	20,000	Nov..	1891	4.00
164	Small Hopes Con., s.	Colo..	5,000,000	250,000	20	*	.....	.....	.....	32,00,000	Nov..	1892	.15
165	Spring Valley, G.....	Cal...	200,000	200,000	1	50,000	Oct.	1886	.25	50,000	Jan..	1881	.25
166	Standard, G. S.....	Cal...	10,000,000	100,000	100	100,000	June	'89	.50	3,665,000	July.	1893	.10
167	Stormont, s.....	Utah.	500,000	500,000	1	*	.....	.....	.....	155,000	Nov .	1881	.05
168	St. Joseph, L.....	Mo..	1,500,000	150,000	10	*	.....	.....	.....	1,974,000	Dec..	1890	.02
169	Swansea, g. S.....	Colo..	600,000	60,000	10	.....	.....	.....	.....	27,000	Mar .	1892	.10
170	Tamarack, C.....	Mich..	1,250,000	50,000	25	520,000	April	1885	3.00	3,160,000	Oct..	1891	.00
171	Teal & Poe.....	N. M..	150,000	150,000	1	.....	.....	.....	.....	9,000	Nov.	1892	.01½
172	Tombstone, G. S. L...	Ariz..	12,500,000	500,000	25	*	.....	.....	.....	1,250,000	April	1882	.10
173	Trinity Riv'r Hydr., G	Colo..	500,000	500,000	1	*	.....	.....	.....	10,000	May	1893	.00½
174	United Verde, C....	Ariz..	3,000,000	300,000	10	*	.....	.....	.....	207,500	Jan..	1892	.10
175	Victor, G...	Colo..	11,000,000	200,000	5	.....	.....	.....	.....	40,000	June	1893	.05
176	Viola Lt., s. L.....	Idaho	750,000	150,000	5	.....	.....	.....	.....	337,500	Nov.	1888	.37½
177	Ward Con., s.....	Colo.	2,000,000	200,000	10	.....	.....	.....	.....	20,000	Dec.	1889	.05
178	Woodside, s. L..... ..	Utah	100,000	100,000	10	.....	.....	.....	.....	25,000	Oct..	1889	.25
179	W. Y. O. D.	Cal..	30,000	15,000	4	22,500	May.	1891	.10	58,500	July.	1893	.10
180	Yankee Girl, s.....	Colo.	1,300,000	260,000	5	.....	.....	.....	.....	1,405,000	April	1891	1.50
181	Yellow Jacket, G. S..	Nev.	12,000,000	120,000	100	5,808,000	Sept.	1892	.25	2,184,000	Aug.	1871	1.50
182	Yosemite No. 2.....	Utah.	1,000,000	100,000	10	.....	.....	.....	.....	25,000	Oct..	1891	.05
183	Young America, G....	Cal...	.....	.....	.....	.....	.....	.....	.....	175,000	Jan..	1889	1.00

NON DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Par	Assessments. Total levied.	Date and am't of last.		
55	Denver City s.....	Colo..	5,000,000	500,00	11	*	.....	.....	.....
56	Denver Gold, G.....	Colo..	300,000	60,000	5	.....	.....	.....	.....
57	Dickens-Custer, s....	Idaho	2,100,000	420,000	5	.....	.....	.....	.....
58	Durango, G.....	Colo..	500,000	500,000	1	*	.....	.....	.....
59	Eastern Dev. Co., Lt	N. S..	1,500,000	150,000	10	990,000	Mar.	1886	1.00
60	El Dorado, G.....	Cal...	1,000,000	250,000	4	*	.....	.....	.....
61	El Talento, G.....	U.S.C.	1,000,000	500,000	2	.....	.....	.....	.....
62	Emma, s	Utah.	625,000	2,000,000	125	.....	.....	.....	.....
63	Emmons, s. L.....	Colo..	2,000,000	100,000	1	.....	.....	.....	.....
64	Empire, s.....	Utah.	10,000,000	100,000	100	.....	.....	.....	.....
65	Eureka Tunnel, s. L.	Nev...	10,000,000	100,000	100	*	.....	.....	.....
66	Exchequer, s. G.....	Nev...	10,000,000	100,000	100	940,000	Jan..	1892	.25
67	Found Treasure, G. S.	Nev...	10,000,000	100,000	100	130,500	Jan..	1892	.50
68	Gogebic I. Syn., I....	Wis..	5,600,000	200,000	25	.....	.....	.....	.....
69	Gold Bank, g. s.....	Colo.	250,000	250,000	1	*	.....	.....	.....
70	Gold Cup, s.....	Colo..	500,000	500,000	1	*	.....	.....	.....
71	Golden Era, s.....	Mont.	2,000,000	200,000	10	*	.....	.....	.....
72	Gold Flat, G..	Cal...	1,000,000	100,000	10	5,000	Mar.,	1892	.05
73	Gold King, g.....	Colo..	1,650,000	350,000	5	.....	.....	.....	.....
74	Gold Rock, G.....	Cal...	1,000,000	500,000	2	.....	.....	.....	.....
75	Golden Feather Co., g	Cal...	900,000	180,000	5	.....	.....	.....	.....
76	Goodshaw, G.....	Cal...	10,000,000	100,000	100	*	.....	.....	.....
77	Goodyear G. S. L....	Mont.	1,000,000	200,000	5	13,000	Feb..	1892	.01
78	Grand Belt, C	Tex..	12,000,000	120,000	100	.....	.....	.....	.....
79	Grand Canyon, s.....	Ariz..	375,000	75,000	5	.....	.....	.....	.....
80	Grand Duke, s.....	Colo.	800,000	80,000	10	.....	.....	.....	.....
81	Gregory Con., G.....	Mont.	3,000,000	300,000	10	.....	.....	.....	.....
82	Harlem M. & M. Co., G.	Cal...	1,000,000	200,000	5	.....	.....	.....	.....
83	Hartery Con., G.....	Cal...	1,000,000	100,000	10	22,000	Oct..	1890	.05
84	Hartshorn, g. s. l. .	S.Dak	1,250,000	250,000	5	8 750	Sept.	1891	.00½
85	Head Cent. & Tr., s. G	Ariz..	10,000,000	100,000	100	16,981	Mar..	1892	.08
86	Hector, G.....	Cal...	1,500,000	300,000	5	45,000	Jan..	1889	.15
87	Highland, C..... ...	Mich..	500,000	25,000	20	.....	.....	.....	.....
88	Himalaya, g. s l....	Utah.	1,800,000	80,000	10	12,800	Oct..	1892	.00½
89	Holywood.....	Cal...	200,000	200,000	2	.....	.....	.....	.....
90	Hortense, s.....	Colo..	2,000,000	200,000	10	.....	.....	.....	.....
91	Huron, C.....	Mich..	1,000,000	40,000	25	280,000	May .	1887	3.00
92	Idaho, g. s	Idaho	1,250,000	250,000	5	.....	.....	.....	.....
93	Inez, s. L	Idaho	1,000,000	1,000,000	1	.....	.....	.....	.....
94	Ingalls, g.....	Colo..	100,000	20,000	5	.....	.....	.....	.....
95	Ironton, I.....	Wis..	1,000,000	40,000	25	.....	.....	.....	.....
96	Iroquois, C.....	Mich..	1,250,000	50,000	25	.....	.....	.....	.....
97	Kentuck Con.....	Nev..	10,500,000	105,000	100	57,750	July.	1892	.10
98	J. D. Reymert, s.....	Ariz..	10,000,000	100,000	100	.....	.....	.....	.....
99	Julia Con., G. S.....	Nev..	11,000,000	110,000	100	1,463,000	Jan..	1889	.10
100	Justice, g. s. C.....	Colo.	500,000	500,000	1	*	.....	.....	.....
101	Lacrosse, G.....	Colo..	1,000,000	100,000	10	*	.....	.....	.....
102	La Cumbre, g. S.....	Mex..	150,000	3,000	50	*	.....	.....	.....
103	Lee Basin, s.....	Colo..	5,000,000	500,000	10	*	.....	.....	.....
104	Little Josephine, s..	Colo..	250,000	50,000	5	.....	.....	.....	.....
105	Lone Star Cons., G..	Cal...	500,000	500,000	1	10,000	April	1892	.00½
106	Lynx Creek, g.....	Ariz..	237,500	147,500	5	.....	.....	.....	.....
107	Madeleine, G. S. L....	Colo..	750,000	50,000	1	4,500	Feb.	1892	.00½
108	Mammoth Gold, g....	Ariz..	2,500,000	500,000	5	*	.....	.....	.....
109	Mayflower Gravel, g..	Cal...	1,000,000	100,000	10	*	.....	.....	.....
110	Medora, G.....	Dak..	250,000	250,000	1	585,000	Mar.	1890	.50
111	Merrimac Con., G. S.	Colo..	5,000,000	500,000	10	.....	.....	.....	.....
112	Mexican, G. S.....	Nev..	10,000,000	100,000	100	2,917,560	ct..	1892	.50
113	Michigan, g s	Mich.	2,500,000	100,000	25	40,000	Mar..	1892	.....
114	Middle Bar, G..	Cal...	400,000	200,000	2	*	.....	.....	.....
115	Mike & Starr, S. C...	Colo..	1,000,000	200,000	5	*	.....	.....	.....
116	Milwaukee, s..... ...	Mont.	500,000	500,000	1	*	.....	.....	.....
117	Minah Cons.....	Mont.	1,250,000	250,000	5	.....	.....	.....	.....
118	Modoc Chief, I. s. g.	Idaho	1,000,000	200,000	5	5,000	Jan..	1892	.00½
119	Monitor, G.....	Colo..	100,000	100,000	1	12,500	May.	1891	.01
120	Montreal, G. S. L....	Utah.	750,000	150,000	5	4,500	Feb..	1892	.00½
121	Mountain Ledge, g..	Cal...	500,000	100,000	5	.....	.....	.....	.....
122	Mount McClellan....	Colo..	1,500,000	300,000	5	.....	.....	.....	.....
123	Mutual Mg. & Sm....	W'sh.	100,000	100,000	1	*	.....	.....	.....
124	Native, C.....	Mich..	1,000,000	40,000	25	.....	.....	.....	.....
125	Neath. G.....	Colo..	1,000,000	100,000	10	.....	.....	.....	.....
126	Nelson.....	Cal...	50,000	10,000	5	.....	.....	.....	.....
127	Nevada Queen, s.....	Nev...	10,000,000	100,000	100	200,000	Oct..	1889	.25
128	New Germany, G.....	N. S..	100,000	100,000	1	*	.....	.....	.....
129	New Gold Hill.....	N. C..	1,750,000	350,000	5	.....	.....	.....	.....
130	New Pittsburg, s. L..	Colo..	200,000	200,000	10	*	.....	.....	.....
131	New Queen Gold, s..	Colo..	800,000	160,000	5	.....	.....	.....	.....
132	North Standard, G...	Cal...	10,000,000	100,000	100	20,000	Nov ..	.....	.....
133	Occidental Con., g.s		10,000,000	100,000	100	245,000	April	1892	.25
134	Oneida Chief, G.....	Cal...	500,000	125,000	100	*	.....	.....	.....
135	Oriental & Miller, s..	Nev...	10,000,000	400,000	100	.....	.....	.....	.....
136	Original Keystone, s.	Nev..	10,000,000	100,000	100	250,000	Mar..	1892	.10
137	Osceola, G.....	Nev...	5,000,000	500,000	10	*	.....	.....	.....
138	Overman, G. S.....	Nev...	11,520,000	115,200	100	4,001,846	May .	1892	.10
139	Park, s.....	Utah.	2,000,000	200,000	10	.....	.....	.....	.....
140	Parker, G.....	N. C.	750,000	180,000	1	.....	.....	.....	.....
141	Pay Rock, s.....	Colo..	1,000,000	200,000	5	.....	.....	.....	.....
142	Peer, s.....	Ariz..	10,000,000	100,000	100	190,000	Feb..	1892	.10
143	Peerless, s.....	Ariz..	10,000,000	100,000	100	405,000	Oct...	1890	.15
144	Pennsylva'a Cons., G	Cal...	5,150,000	515,000	10	36,050	Feb..	1892	.10
145	Phoenix, g.....	Ariz..	500,000	500,000	1	*	.....	.....	.....
146	Phoenix Lead, s. L....	Colo..	100,000	100,000	1	*	.....	.....	.....
147	Pilgrim, G	Cal...	600,000	300,000	2	*	.....	.....	.....
148	**Pioche M. & R., s.G.L	Utah.	20,000,000	2,000,000	10	.....	.....	.....	.....
149	Poorman, Ltd., s. L.	Idaho	250,000	50,000	5	.....	.....	.....	.....
150	Potosi, s.....	Nev...	11,200,000	112,000	100	1,573,000	Mar..	1890	.50
151	Proustite, s.....	Idaho	250,000	250,000	1	*	.....	.....	.....
152	Puritan, s. G..... ...	Colo..	1,500,000	150,000	10	*	.....	.....	.....
153	Quincy, C	Colo..	3,000,000	300,000	10	.....	.....	.....	.....
154	Rainbow, g.....	S.Dak	1,250,000	250,000	5	4.250	July.	1892	2.00½
155	Rappahannock, G. S.	Va....	250,000

COAL AND COAL RAILROAD STOCKS.

Names of Stocks.	Aug. 5. H.	Aug. 5. L.	Aug. 7. H.	Aug. 7. L.	Aug. 8. H.	Aug. 8. L.	Aug. 9. H.	Aug. 9. L.	Aug. 10. H.	Aug. 10. L.	Aug. 11. H.	Aug. 11. L.	Sales.
Am Coal	.....	.....	.....	.....	67	66	67	66	66⅜	66	65½	.....	3,921
Balt. & Ohio	66	63⅜	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
do. pref	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Buff., R. & P	.....	.....	.. ..	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
do. pref	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cambria Iron	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ches. & Ohio	15¾	15⅛	15⅛	.....	15⅛	15¼	15	.....	15¼	15	15¼	15	4,417
do. 1st pref	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Col. C. & I	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Col. Coal	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Colorado Fuel	23	.....	.....	.....	.....	.....	.....	.....	21	.....	23	21	530
do. pref	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Col., H V.& Tol.	15¼	.....	15¼	14½	14	.....	14¼	14	15	14¾	. .	.....	2,200
do. pfd	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Col. & H. Coal	.....	.....	6	... ..	6¾	6	6⅝	6½	6½	6¼	.....	.....	1,200
do. pfd	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cons. Coal	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Del. & Hud. C	112	.....	111⅛	.....	113	111⅜	110⅛	108¾	110⅛	110	113¼	112⅛	2,528
Del., L. & West.	140	139	137½	136½	137	136	136	134	138	136	139⅛	137	10,453
Hunt. & B.Top	.....	.....	32½	.....	.....	.....	.....	.....	32	.....	.....	.....	142
do. pref	48	.....	.....	.....	48	.....	.....	.....	48	47½	.....	.....	231
Lake Erie&Wes	.....	.....	15	14½	14½	.....	13⅞	.....	14	13⅜	14	.....	1,415
do. pref	57¾	.....	57¾	57½	57¾	57	56¾	55⅝	58⅛	58	.....	.....	535
Lehigh C. & N	47⅝	47¼	47¼	47	47¼	47	47	.....	47	.....	.....	.....	742
Lehigh Valley	36	34⅝	34	30	31¾	29	32¼	29¼	30⅞	29¼	.....	.....	23,872
Maryland Coal	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
do. pref	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Morris & Essex	.....	.....	.....	.....	.....	.....	.....	.....	139¾	.....	.....	.....	100
New Cent. Coal	.....	.....	.....	.....	.....	.....	6	.....	6⅛	.....	.....	.....	500
N. J. Central	98¼	96	97½	93	94½	93⅝	92	90	92	.....	93	.....	2,818
N. Y., L. & W	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
N. Y., L. E.& W	11¾	11⅜	12⅜	11⅜	12	11½	11¾	11⅛	12	11½	.....	.....	8,328
do. pref	.....	.....	23	.....	.....	.....	.....	.....	.....	.....	25	.....	205
N.Y., Susq. & W	10¾	10½	11	... ...	10½	.....	10½	10¼	10	.....	10½	10¼	2,049
do. pref	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
do. pref., new	41	.....	.....	.....	.....	.....	39	.....	.....	.....	39	.....	320
N. & West	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
do. pref	21	.....	21½	.....	.....	.....	20	.....	.....	.....	.....	.....	320
Penn. Coal	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Penn. R. R	50	49¾	49⅞	49⅛	50	49⅛	50	49⅜	50⅛	49¾	.....	.....	8,343
Phil. & Reading	13⅛	.....	13⅛	13⅜	13⅛	13¼	13⅜	12¾	13⅜	.....	13⅛	13⅜	8,815
Tenn. C. & I.	13¾	13⅛	13⅜	13⅛	13⅛	12½	12	11	12	10¼	12	11½	6,510
do. pref	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Wheel. & L. E.	.....	.....	12½	12¼	.....	.....	13⅜	.....	13⅜	.....	.....	.....	413
do. pref	.....	.....	40	38⅝	41⅜	39½	40¾	.....	41⅜	.....	.....	.....	967

Total shares sold, 92,004.

INDUSTRIAL AND TRUST STOCKS.

Name of Stocks.	Aug. 5. H.	Aug. 5. L.	Aug. 7. H.	Aug. 7. L.	Aug. 8. H.	Aug. 8. L.	Aug. 9. H.	Aug. 9. L.	Aug. 10. H.	Aug. 10. L.	Aug. 11. H.	Aug. 11. L.	Sales.
Adams Express	140	.....	141	.....	.....	.....	140	.....	140	.....	.....	.....	200
Am. Cotton Oil.	30½	30	30	27½	27½	27	28	27	28½	27⅜	29⅝	27⅝	11,191
do. pref	58	.....	59	56	56¾	56¾	56½	55¼	57⅞	57	57⅞	56¾	2,091
Am. Dist. Tel	.....	.....	44	.....	.....	.....	.....	.....	.....	.....	.....	.....	100
Am Express	.....	.....	109	108	.....	.....	108	.....	106	101	.....	.....	185
Am. Sugar Ref	77¼	72⅝	76½	73	74	70½	72½	68⅜	74	70⅛	75	71¼	148,896
do. pref	74	.....	75½	74⅛	74⅜	73¾	73	72	75	72	75	74⅛	3,514
Edison E. Ill. Co.	.....	.....	89	87	.....	.....	.....	.....	89⅛	.....	.....	.....	210
Edison Gen. El.	52½	49	52¾	47⅜	47½	42⅜	43¼	37½	46½	41	47	44½	105,901
Nat. Cord. Co	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
do*	11	.....	10¾	.....	10	9¾	9⅛	8¾	8¾	8⅛	8⅜	8½	4,961
do. pref	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
do.*	.....	.....	.....	.....	35	.....	.....	.....	.....	.....	.....	.....	150
Nat. Lead Co	25¾	25	25	24¼	24½	23	23	22⅛	24⅛	23¾	25	23⅞	4,117
do. pref	60¼	.....	60½	59¼	59⅝	57	58	56¾	59⅛	58⅛	61	59¼	3,908
Nat. Linseed Oil	.....	.....	.....	.....	.....	.....	16¼	14⅞	.....	.....	19⅜	17	600
U. S. Express	48	.....	.....	.....	.....	.....	.....	.....	50	.....	.....	.....	106
U. S. Rubber	.....	.....	23	.....	21	20	20	19	.....	.....	.....	.....	775
do. pref	67	.....	64	.....	64½	.....	.....	.....	.....	.....	.....	.....	245
Wells, Fargo Ex	135	.....	140	.....	.....	.....	.....	.....	.....	.....	.....	.....	40
Western Union	79⅝	77	79⅝	77¼	77⅝	75⅛	75¾	72½	77⅜	74½	78¼	76¼	86,208

* First assess. paid. Total sales, 372,802.

CALIFORNIA.

San Francisco.

Names of Stocks.	Closing Quotations. Aug. 4	Aug. 5.	Aug. 7.	Aug. 8.	Aug. 9.	Aug. 10.
Alpha	.....	.....	.....	.....	.....	.....
Alta	.10	.10	.10	.10	.10	.10
Belcher	.25	.35	.35	.30	.....	.....
Belleisle	.....	.....	.....	.....	.....	.....
B. & Belch	.55	.60	.65	.60	.55	.55
Bodie	.....	.....	.....	.....	.10	.10
Bulwer	.....	.....	.....	.....	.....	.....
Challar	.20	.25	.30	.25	.25	.25
Com'w'lth	.....	.....	.....	.....	.....	.....
Con.C.&V.	1.05	1.15	1.35	1.35	1.30	1.30
Con. Pac.	.....	.....	.....	.....	.....	.....
Crown Pt.	.35	.40	.35	.25	.30	.30
Del Monte	.....	.....	.....	.....	.....	.....
E'rekaCon	.....	.....	.....	.....	.....	.....
G'ld & C'y	.50	.30	.35	.30	.30	.30
Hale & N.	.50	.55	.50	.55	.50	.50
M. White	.....	.....	.....	.....	.....	.....
Mexican	.30	.35	.45	.40	.35	.35
Mono	.....	.....	.....	.....	.....	.....
Mt. Diablo	.....	.....	.....	.....	.....	.....
Navajo	.....	.....	.....	.....	.....	.....
Nev. Qu'n	.....	.....	.....	.....	.....	.....
N.B'lleisle	.....	.....	.....	.....	.....	.....
N. Co'w'th	.....	.....	.....	.....	.....	.....
Ophir	.65	.70	.75	.75	.70	.70
Potosi	.40	.45	.55	.45	.40	.40
Savage	.30	.40	.45	.40	.35	.35
Sierra Nev	.35	.35	.35	.40	.35	.35
Uni'n Con	.30	.30	.35	.40	.35	.35
Utah	.10	.10	.10	.10	.10	.10
Yel. Jack	.60	.60	.55	.50	.45	.45

COLORADO.

Aspen.

	Bid.	July 1. Asked
Argentum Juniata	$0.69	$0.70
Aspen Contact	1.10	1.12
Aspen Deep Mining	.11	.11½
Best Friend	.07½	.08
Bi-Metallic	.07½	.08
Bushwacker	.14	.15
Delia S.	1.90	2.00
Gold Valley Placer	.20	.20
Little Annie	.07½	.08
Mollie Gibson	5.50	6.00
Pontiac	.09	.09½
Smuggler	35.00	38.00
St. Joe & Mineral Farm	.10½	.11
U. S. Paymaster	....	....

Colorado Springs. Aug. 5.

	Bid.	Asked.
Anaconda Gold	.16	...
Antlers P. K. Reg	...	.10
Calumet	...	.02⅛
Cleopatra	...	.09½
C. O. D.	.02	.03½
Cook's Peak	...	.40
Del Monte	.03	.04½
Enterprise	.02½	.05
Fanny Rawlins	...	.06
Golden Dale	.01	.02
Isabella	...	.10½
Lemhi	...	.77½
Mollie Gibson	1.85	1.95
Mount Rosa	.00¾	...
Pharmacist	.23	.24
Summit M. & M.	...	.14
Work	.21½	.02⅞
World	...	.01⅛

Denver.

Prices and sales for the week ending July 4:

	High.	Low.	Sales.
Anaconda	$.26	$.21	500
Bangkok-Cora Belle	.02¾	.02	....
Diamond B	.03	.02	6,500
Gold Rock	.01½	.03	100
Justice	.01½	.01¼	300
Puzzler	.04	.03	....
Work	.03	.02¾	42,3.0
Total sales			50,000

MONTANA.

Helena.

Prices for the week ending July 29:

	Bid.	Asked.
Bald Butte (Mont.)	$2.00	$2.50
Benton Group (Neihart), Mont.	.10	.15
Combination(Phillipsb'g),Mont	.75	.90
Cumberland (Castle), Mont.	...	....
Elizabeth (Phillipsb'g), Mont.	...	.30
Florence (Neihart)	...	....
Helena & Victor, Mont.	...	.75
Iron Mountain(Missoula), Mont	.55	.60
Pegan (Marysville), Mont.	...	.50
Peorman (Cœur d'Alene), Idaho	...	.50
Whitlach Union & MacIntyre.	.35	.40
Yellowstone	...	....

MARYLAND.

Baltimore. Aug. 10.

Company.	Bid.	Asked.
Balt. & N. C.	....	$0.04
Conrad Hill	....	...
Cons. Coal	....	.32
Diamond Tunnel	....	.15
George's Creek Coal.	....	1.07
Howard C. & C.	$1.10	....
Lake Chrome	.01@.02	....
Silver Valley	....	30

MINNESOTA.

Duluth. Aug. 4.

LISTED STOCKS.

	Par.	Bid.	Asked.
Piwabik M. Iron Co	100	$16.50	$18.50
Cincinnati Iron Co	25	.25	.33
Clark Iron Co	100	.40	.60
Cosmopolitan Iron Co	...	....	....
Great Northern Min. Co.	100	2.00	2.50
Kanawha Iron Co	100	.20	.40
Keystone Iron Co	...	.20	.40
Lake Superior Iron Co	25	1.00	2.00
Lincoln Iron Co	..	....	.50
Little Mesaba Iron Co	100	....	....
Mesaba Moun. Iron Co.	100	9.00	13.00
Minneapolis Iron Co	100	.05	.20
Mountain Iron Co	100	35.00	60.00
Shaw Iron Co	100	.75	1.10
Security Land & Exp. Co.	10	....	16.00
Washington Iron Co	100	....	....

UNLISTED STOCKS.

Adams Iron Co	$8.00	$9.00
Agate Copper Mining Co	....	1.00
Allegheny Iron Co	....	....
Aurora Iron Co	....	....
Buckeye Iron Co	....	2.50
Buffalo Land & Exp. Co.	....	.50
Camden Iron Co	....	.25
Chandler Iron Co	....	40.00
Chicago Iron Co	....	.30
Charleston Iron Co	....	.40
Champion Iron Co	....	.40
Cleveland Iron Co	....	....
Columbia Iron Co	....	....
Commodore Mining Co	....	....
Comstock Iron Co	....	....
Dayton Iron Co	....	....
Detroit Iron Co	....	.03
Elmira Land & Iron Co	....	.25
Great Western Mining Co.	1.00	1.12
Hall Iron Co	....	....
Homestead Iron Co	.00½	.03
Horton Mining Co	....	....
Imp. Iron Mt. Mining Co.	....	....
Internat'l Development	....	22.50
Kakina Iron Co	....	....
Kentucky Iron Co	....	....
Lackawanna Iron Co.	.35	.40
Macomber Mining Co	....	....
McCaskill Mining Co	.01	.05
McKinley Iron Co	...	24.50
Mesaba C., L. & Ex. Co.	....	6.00
Mesaba Chief Iron Co	1.70	1.85
Mesaba Iron Co	....	.20
Mesaba Mineral Co	....	....
Minnesota Iron Co	42.00	55.00
Myrna Iron Co	....	....
Northern Light Iron Co	....	.25
New England Iron Co	....	....
Ohio Mining Co	....	6.00
Oneota Iron Co	....	....
Ophir, gold	1.00	1.75
Pennsylvania I. & S. Co.	.04	.10
Pioneer	....	1.00
Putnam	....	.80
Rouchleau Iron Co	.20	.35
Republic Iron Co	....	.50
Red Hematite Iron Co	....	.15
Sheridan Iron Co	....	.20
Standard Ore Co	.25	.50
Stowell Iron Co	....	....
Towanda Iron Co	1.50	2.00
Ver. & Mesaba Iron Co.	....	1.00
Zenith Iron Co	....	1.25

MISSOURI.

St. Louis. Aug. 9.

Closing quotations:

	Bid.	Asked.
Adams	$0.40	....
American & Nettie, Colo.	.30	$0.35
Bi-Metallic, Mont.	....	4.00
Elizabeth, Mont.	.15	.25
Granite Mountain, Mont.	1.20	1.50
Hope	....	2.50
Leo	.01½	.03
Pat Murphy	....	....
Small Hopes	....	.50

PENNSYLVANIA.

Philadelphia. Aug. 10.

(Special report by SAM'L K. DAVIS.)

	Bid.	Asked.
Bloomington C. & C.	....	....
Buck Mountain C.	....	....
Cambria	64	....
Connellsville Gas Co.	....	....
Edison E. Light Co.	....	120
Excelsior B. & S.	....	....
Locust Mt. C. & I.	....	....
Penn. Salt	....	100
Penn. Steel	....	54
Penn. Gas Coal	.47	....
Royal Gas	....	....
Westmoreland C.	.50	....

Pittsburg. Aug 9.

	Bid.	Asked.
Bridgewater Gas Co.	$35.00	....
Chartiers Val. Gas.	6.00	$9.50
Con. Gas	45.00	....
Enterprise Mining Co.	....	1.50
Hidalgo Mining Co.	1.75	....
La Noria Mining Co	7.75	8.38
Luster Mining Co.	7.50	8.00
Manufacturers' Gas	29.00	30.00
N Y. & Clev. G. C.	....	51.00
Ohio Valley Gas	....	32.00
Pennsylvania Gas	....	9.00
People's N. G. & P. Co.	11.13	12.50
Philadelphia Co.	18.00	18.13
South Side Gas	....	....
Tuna Oil	....	....
Wheeling Gas Co.	15.00	19.00
W'house Air Brake Co.	116.00	116.50

London Quotations.

	Aug. 2. 1893. Buyer. £ s. d.	Seller. £ s. d.
Alaska Treadwell, Alaska Ter	1 15 0	2 0 0
Almada & Tirito, Mex.	10½	1 1½
American Belle, Colo.	1 0	1 6
Big Creek, Nev.	8 9	11 3
De Lamar, Idaho	15 0	16 0
Elkhorn, Mont	9 0	10 0
Emma, Utah	9	1 3
Flagstaff, Utah	7½	10½
Golden Feather, Cal.	7 6	8 6
Golden Gate, Cal	2 6	3 6
Golden Leaf, Mont. & N. M	3	9
Holcomb Valley, Cal.	9	1 0
Jackson Gold Fields.	9	1 0
Jay Hawk & Lone Pine, Mont	5 0	6 0
Maid of Erin, Colo.	1 3	3 9
Mammoth Gold, Ariz.	6	0 9
Mesquital del Oro, Mex., P	3 0 0	4 0 0
Mesquital del Oro, Mex., D	15 0	1 5 0
New Eberhardt, Nev.	.....	3
New Guston, Colo.	5 0	7 6
New Montana, Mont.	2 0	2 6
Palmarejo, Mex	9	1 0
Pinos Altos, Mex.	1 0	1 6
Poorman, Idaho	5 6	6 6
Rajah Gold, Can	6 3	8 9
Richmond Con., Nev.	2 6	7 6
Seven Stars, Ariz.	1 5 0	1 10 0
Sierra Buttes, Cal.	6 0	8 0
South Poorman, Idaho	1 2 6	1 5 0
Springdale Gold, Colo.	2 6	3 6
United Mexican, Mex.	2 0	3 0
Yankee Girl, Colo.	3	0 9

Paris.

July 27. Francs.

Belmez, Spain	665.00
Golden River, Cal.	130.00
" " parts	30.00
Laurium, Greece	630.00
Lexington, Mont	82.50
" parts	2 0
Nickel, New Caledonia	735.00
Rio Tinto, Spain	372.50
" " oblig	530.00
" " 2d	535.00
Tharsis, Spain	118.75
Vieille-Montagne, Belgium	485.00

New York Mining Stocks.

(Latest quotations.)

	Bid.	Aug. 4, Asked.
Adams	....	....
Alice	....	....
Alta	....	...
Amer. Flag	....	....
Aspen	....	....
Belcher	....	....
Best & Belcher	....	....
Bodie	....	....
Breece	....	....
Brunswick	....	....
Bulwer	....	....
Caledonia, B. H.	....	....
Carth Creek	....	....
Challar	....	....
Chrysolite	....	....
Comstock Tunnel	....	....
Colo. Central	....	$1.20
Con. C. & Va	....	....
Crown Point	....	....
Deadwood	....	....
El Cristo	....	....
Enterprise	....	....
Gould & Curry	....	....
Hale & Nor.	....	....
Horn Silver	....	....
Iron Silver	....	....
Kingston & Pem.	....	....
La Crosse	....	....
Leadville	....	....
Little Chief	....	....
Mexican	....	....
Mono	....	....
Ophir	....	....
Phœnix of Ariz.	....	....
Plymouth	....	....
Savage	....	....
Sierre Nevada	....	....
Union	....	....
Yellow Jacket	....	....

ASSESSMENTS.

Company.	No.	Dlnqt. in office.	Day of sale.	Amt. per sh're
Alh'mbra, Nev.	17	Aug. 18	Sept. 11	.25
Alta, Nev.	43	Aug. 21	Sept. 8	.15
Belcher, Nev.	46	Sept. 4	Sept. 25	.25
Bodie Con., Cal.	16	Aug. 28	Sept. 25	.15
Bulwer, Cal.	8	Aug. 31	Sept. 22	.10
Calumet, S. Dak	1	July 24	Aug. 14	.02
Central N. Star, Cal.	2	Aug. 19	Sept. 9	.05
Darboy, S. Dak	3	July 25	Aug. 14	.002
Diamond, Cal.	2	Aug. 1	Aug. 17	.02
Excheq'er, Nev	36	Aug. 1	Aug. 29	.10
Gold Mt., Cal.	5	Aug. 16	Sept. 4	1.50
H'le&Nor., Nev	104	July 25	Aug. 18	.50
Lady Washington, Nev.	9	Aug. 9	Aug. 30	.10
Mexican, Nev.	48	Aug. 22	Sept. 12	.25
Occid'ntal, Nev	13	Aug. 16	Sept. 6	.10
Potosi, Nev.	38	Aug. 15	Sept. 5	.25
Savage, Nev.	81	July 25	Aug. 14	.05
Seg. Belcher & Mides, Nev.	12	Aug. 29	Sept. 18	.10
Sierre Nevada, Nev.	105	Sept. 6	Sept. 25	.20
So. Eureka, Cal.	5	Sept. 4	Sept. 29	.01½
Yosemite No. 2, Utah	....	Aug. 18	Sept. 5	.05